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IMPOSES
AN IMPRESSIVE TASK
Brucella abortus and *Brucella suis* stand out in livestock sanitary science and preventive medicine as specific organisms accountable for a mounting threat to animal production and public health.
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Foot-and-Mouth Disease Activities and Policies

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NO OTHER disease of animals excites the popular interest of the people of the United States quite as much as foot-and-mouth disease. The name carries with it all the ominous implications of a dread malady that is known to cause great loss. It also carries with it much of mystery, since the herds and flocks of this country have been protected from it except for a few outbreaks. During the past two years, many columns of reports and editorial comment have appeared in the press about the dangers of foot-and-mouth disease from Mexico. The subject has received almost daily consideration in Congress. Livestock owners, veterinarians, and livestock sanitary officials, as well as the Bureau of Animal Industry, have given much thought and a lot of hard work to the problem of keeping the disease out of the United States.

What is this thing that causes so much trouble? Foot-and-mouth disease is an infectious, extremely contagious disease of cattle, sheep, goats, swine, and other cloven-hoofed animals. It is caused by a filterable virus, one of the smallest known. The incubation period of the disease is generally eighteen hours to three or four days, although some reports have indicated that the period may be as long as three weeks. The disease is characterized by the formation of vesicles on the mucous membranes of the mouth and tongue, and on the skin around and between the divided hoofs. The teats and udder may also be involved and lesions frequently occur on the snouts of hogs.

There are fever and loss of appetite and in cattle, drooling is a familiar symptom. Affected animals find it difficult to eat and often become so lame that they will move around only if forced to do so. Like many other diseases, foot-and-mouth disease has a tendency to come in waves, reaching a peak and then becoming less prevalent for several years until there is another devastating outbreak. Not many animals die, but the disease is most feared because it spreads so rapidly and often leaves its victims thin and in poor condition for meat or milk production or for breeding purposes. Sometimes the disease appears in a malignant form in which as many as 50 per cent of the affected animals may die or become so seriously injured that they are of no practical value.

Australia, New Zealand, and the North American continent are the only major land areas of the world that have long succeeded in keeping free of this disease. The British Isles have kept the disease under control and are often entirely free of it for many months. The Union of South Africa, and Venezuela, and Colombia are presently free of foot-and-mouth disease.

NO FOOT-AND-MOUTH DISEASE IN UNITED STATES SINCE 1929

Considering the wide spread of this disease throughout the world, and its contagious nature, it is natural to question how it happens that the United States has been able to maintain its freedom from the

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malady. This country, with its extensive importation of products from practically all corners of the earth, is constantly brought face to face with the danger of introducing foot-and-mouth disease.

We are protected through the application of strict regulatory controls based on federal legislation designed especially to keep foot-and-mouth disease, rinderpest, and other foreign plagues away from our live-

Fig. 1—Eroded tissue between the toes of animals.

stock industry. Since the passage of legislation in 1890 (Act of Aug. 30, 1890, 21 U.S.C. 101-105) strengthening the controls on the importation of livestock, no case of foot-and-mouth disease has gained entrance into the United States through the importation of cattle or other livestock. Certain provisions of the Tariff Act of 1930 (Act of June 17, 1930, 46 Stat. 689) further strengthened our position in this respect and provided also that no fresh, chilled, or frozen beef, veal, mutton, lamb, or pork, may be imported from any country where foot-and-mouth disease or rinderpest exists.

We have had no foot-and-mouth disease in the United States since that time. The last outbreak, one year before (1929), was in the southern part of California. The infection was traced directly to trimmings of meat that had originated in South America. Fortunately, the outbreak was quickly discovered and soon eradicated.

Inspectors of the Bureau of Animal Industry maintain constant watchfulness at the many ports of entry. In this we have the fine help of state and county organizations. Prohibited animals are denied entry without great difficulty, although interested parties often make strenuous efforts to break through or evade the barriers. A more difficult problem is to prevent the entry of fresh meats and other prohibited animal products and to control the entry of restricted products of animal origin, such as pancreatic glands for the preparation of insulin, hides for leather, bones for glue and fertilizer, and a wide variety of other products that must be classified and either denied entry or allowed to come forward under proper restrictions. The great increase of shipping since the last war, the increased use of many smaller ports of entry, and the tremendous expansion of air traffic have added greatly to this problem.

In an effort to add to the protection of this country's livestock industry, the Department of Agriculture has given unceasing effort to the problem of assisting the other countries of North and Central America to maintain their herds and flocks free of the same foreign diseases. These efforts have been generally successful, but the temptation to import valuable breeding stock from countries where foot-and-mouth disease exists has been hard for several of the countries to resist. The plan of an international quarantine station on Swan Island was conceived with the view of helping the countries of Central America and the Caribbean area to import some valuable breeding stock with reasonable assurance of safety.

FOOT-AND-MOUTH DISEASE IN MEXICO

One Major Objective in Mexico Already Achieved.—The outbreak of foot-and-mouth disease in Mexico in 1946 posed a new and extremely difficult problem. It threatened to outflank our defenses along a land boundary that would be most difficult to defend. The gigantic effort to combat the disease in coöperation with the Government of Mexico has thus far been successful in one major objective—that of holding the disease from spreading into northern Mexico, Central America, and the United States.

The second and final objective of the campaign—to eradicate the disease—has not yet succeeded, as it was found impossible to carry through with a slaughter program of eradication. The present program, which is the best that can be devised under the circumstances, includes the maintenance of strong quarantine enforcement to prohibit the escape of the disease from the central area of Mexico; constant reinspec-

tion of the susceptible animals near the borders of the infected area to discourage movement of the animals and to discover the disease quickly if it should occur there; the importation, production, testing, and improvement of foot-and-mouth disease vaccines; the vaccination of susceptible animals beginning at the periphery of the infected area; and the disinfection of premises where the infection has occurred.

The work in Mexico is going forward on a scale never before attempted in animal disease control projects. The Bureau of Animal Industry has more than 450 men on the job, of whom 80 are veterinarians. The Mexican Government has employed a like number of veterinarians and the appropriate number of technicians and administrative personnel. In addition, the Joint Commission has employed 1,400 persons who operate the disinfection stations, take care of the machines, and do all manner of work required in the conduct of the campaign. Enforcement of quarantine and other restrictions are in the hands of the Mexican National Army.

In charge of this enormously important work in Mexico are: Oscar Flores, Sub-Secretary of Agriculture for Mexico, and Harry H. Johnson, special assistant to the Secretary of Agriculture, for the United States. Mr. Johnson relieved Dr. M. S. Shahan, who is now in charge of all the Bureau's foot-and-mouth disease research. Mr. Johnson is well equipped for this trying job. He was drafted from his position as a top executive of a large oil company. A citizen turned soldier during the war, he became a major general and was for a time Governor of Rome. Mr. Johnson's top associate in Mexico is Dr. L. R. Noyes, who has directed the field activities for the United States Section of the Commission from the beginning of the program.

Vaccine Studies in Mexico in Progress.—Much has been written and said about foot-and-mouth disease vaccines. In evaluating the information available to us, it is necessary to consider the special circumstances involved in the preparation, testing, and use of the vaccines in the countries involved. All vaccines used in Mexico, whether imported from abroad or prepared there, are being tested for innocuity as well as to determine their protective value. In all instances, the tests have shown the vaccines to be incapable of producing the disease. The tests to determine the protective values of several lots of vaccines have produced widely different results. It is too early to correlate these laboratory tests with field observations to form any firm conclusions as to the values of the vaccines under conditions of use in the infected areas of Mexico.

The many variable factors involve characteristics of animals, conditions under which they are held, the degree of severity of possible exposure to the disease, and the possibility that the animals may have been previously exposed and gained some resistance. All these factors combine to make accurate conclusions difficult at this stage of the work. As the base of vaccine use is broadened, it is probable that the field experiences will fall into a more regular pattern which will lend itself to analysis and more accurate reporting and deductions.

At the end of July, the number of animals vaccinated in Mexico was 370,000. This number would have been considerably greater except that the supply of usable vaccine has not been large enough to keep up with the field activities. Arrangements have been made with the laboratories in the Netherlands, Denmark, and Switzerland to supply much larger amounts during the latter part of this year. In addition, the Mexican-United States Commission (with special credit to Dr. Fernando Camargo of

Fig. 2—Blisters on the tongue which break, making it painful for the animal to eat.

Mexico and Dr. C. A. Manthei of our Bureau) have set up, and now have in operation in Mexico City, vaccine-production facilities, which it is hoped will be able to produce in the neighborhood of 100,000 doses weekly within a short time. The field program then will include vaccination of 500,000 to 600,000 animals per month. The plan is that this mass vaccination of susceptible animals, working from the periphery toward the center of the quarantined area, coupled with the inspection, quarantine and disinfection activities, and some slaughter where it can be done, will gradually snuff out the disease.

Extensive Disinfection Operations.—Some statistics about the various activities in Mexico may be of interest. For example, during one recent week, the field forces inspected 142,000 animals. During the same time, cattle purchased for vaccine production and testing numbered 110. These animals have to be purchased in the clean zone above the northern quarantine line and transported, with the necessary feed supplies, to the laboratories at Mexico City without exposing them to the disease. During the same week, the disinfection crews supervised the cleaning and disinfection of 4,400 stock trucks, 1,500 railroad cars, 367 boats and barges, and 330 airplanes. There is no doubt that this constant attention to the cleaning and disinfection of vehicles, particularly stock trucks and railroad cars, plays an important part in stopping the spread of the disease. In order to maintain the large fleet of automotive equipment necessary to carry on this work, the engineering services of the commission, in an average week, have to repair and service about 550 cars, trucks, and other machines. These jobs range from the ordinary lubrication service to complete engine overhauls and repairs of machines that have been wrecked.

Canned Meat Purchased by United States.—In addition to the work in Central Mexico, you are aware, of course, that the Production and Marketing Administration of the USDA is purchasing millions of pounds of canned meat in northern Mexico to relieve that area of the surplus cattle that would ordinarily have been exported to the United States. This part of the program is self-liquidating through the sale of the meat to agencies engaged in foreign relief activities, and is regarded as an important factor in maintaining the support of a substantial part of Mexico for the control and eradication program.

Border Patrol.—Also, the Bureau of Animal Industry maintains a strong patrol along the Mexican-United States border to guard against the possible bringing in of the disease. Bureau representatives throughout this country, engaged in all lines of bureau work, have taken special precautions to make sure that the disease, if introduced, will be quickly discovered and immediately controlled and eradicated.

Fig. 3—Sore feet that cause hogs to walk on their knees.

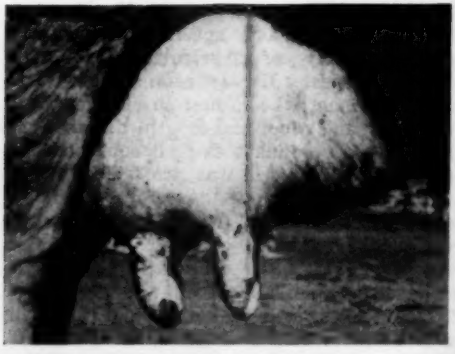

Fig. 4—Blisters and erosions on cows' teats, with rapid drop in milk production.

RESEARCH ON FOOT-AND-MOUTH DISEASE IN UNITED STATES

The work in Mexico is being pushed relentlessly and every advantage will be taken of new information concerning the disease, which may help in the eradication process. Such information may come from two

sources: (1) the observations in the field, and (2) the work of research scientists. Several scientists have been sent, by the Bureau, to the established foot-and-mouth disease research laboratories in Europe to conduct initial studies and to make sure that none of the information brought to light in the work of those laboratories may have been overlooked. However, most of the work there must necessarily be gauged to the needs of the respective countries where they are located. Much more is needed if the United States is to make real progress in foot-and-mouth disease research. It is for this purpose that the proposed new foot-and-mouth disease laboratory has been planned.

Research Laboratory Authorized. — On April 27 of this year, the Congress authorized the establishment and maintenance of complete facilities for full research on all phases of foot-and-mouth disease. Preliminary plans for the research station include the most modern construction to insure against the accidental escape of the virus. The sewage and all effluents are to be sterilized, the laboratories and other units are to be air conditioned and the exhaust air will be sterilized. Persons moving from one unit to another must bathe and make a complete change of clothing. All the clothing used within the laboratories will be sterilized and laundered on the premises. Only healthy animals will be brought into the laboratory and all will be killed and disposed of by incineration or other safe means on the premises. There is every reason to believe that the work can be conducted in the proposed establishment with complete safety.

The Bureau has consulted with the directors of several foreign foot-and-mouth disease research laboratories, all of whom have endorsed the desirability of conducting such research in the United States. One of the directors pointed out that a research laboratory was necessary in connection with regulatory work, through determining the commodities that might be brought in with safety and those to be excluded. In cases of outbreaks, the laboratory would be prepared, of course, to make prompt determination of the type of virus and otherwise be of service to the eradication forces.

FREEDOM FROM FOOT-AND-MOUTH DISEASE CAN BE MAINTAINED IN UNITED STATES

I wish to emphasize an important point that has been referred to many times in connection with this disease. Our job is to keep foot-and-mouth disease out of this country. However, if the disease should somehow get past the controls at one of the seaports or airports, or at the border, our job is to recognize it and quickly eradicate it. This can be done only if the disease is reported promptly so that the eradication effort can get under way before the disease gains too great a foothold. It is at this point that everyone connected with the livestock industry must help. You can do your part by impressing upon the livestock owner the necessity of reporting to his veterinarian, or to the state or federal livestock official, the first signs of any condition that might be foot-and-mouth disease. If you find the condition to be suggestive of this disease, it should be reported immediately by telephone to the appropriate state livestock sanitary official and the bureau inspector in charge. They have been working together closely to make sure that everything is in readiness for prompt action to control and eradicate this disease if it occurs here. We have every confidence that they will accomplish this purpose if they are given the one important advantage—early discovery of the disease.

The policy of prompt slaughter and burial, under conditions in the United States, remains unchanged. Nor is any change contemplated. The Bureau is naturally interested in the value of vaccines and desires all possible information concerning them. But no developments in Europe, Mexico, or elsewhere appear to warrant any change in the United States from the rapid and effective slaughter policy that has kept this country free of the disease all these years. With adequate continued support from the veterinary profession, livestock owners, and others, the status of continued freedom from foot-and-mouth disease can be maintained.

Neglect by the veterinary profession of the responsibility for wholehearted participation in the control of poultry diseases will only redound harmfully to the industry and the profession.—*Dr. C. A. Brandly.*

Veterinary Medicine in Nebraska

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VARIOUS agencies, such as the National Research Council,[1, 2] have called attention to the demand for professional veterinary service and the shortage of properly trained individuals to satisfy this need. The restriction of enrollment to residents of the states in which veterinary colleges are located, and the unusually large number of students desirous of training in veterinary medicine, has created a situation which requires serious thought. Solution of such problems must be based upon reliable data. While there has been much conjecture as to the needs for veterinarians in various fields of service and in different areas, there is relatively little factual information. For example, the census figures for the number of veterinarians in Nebraska can be cited; in 1920 there were 436, in 1930 there were 435, and in 1940 only 309 veterinarians. Drought and depression seriously affected the agricultural economy of Nebraska in the decade from 1930 to 1940. Thus, it might be said there was a serious shortage of veterinarians in Nebraska in 1940. Actually, much more information is needed for a reliable conclusion.

The situation in Nebraska was studied by comparing data on the employment, age, schools of training, and geographic distribution of the veterinarians in Nebraska. Two sets of data were used. The information collected in 1942 by the Procurement and Assignment Branch of the War Man Power Commission comprised one set. The other set of data was collected as of June, 1947, from various sources.* These lists provide a reasonably accurate survey of veterinarians in Nebraska for 1942 and 1947. Some idea of the change during a five-year period can be obtained by comparison, though World War II, with its upheaval of so-called normal conditions, is a factor influencing this period. Probably, those veterinarians who intended to return to, or settle in Nebraska, had done so by June, 1947. A study of these data and some observations of their significance constitute the basis for this report.

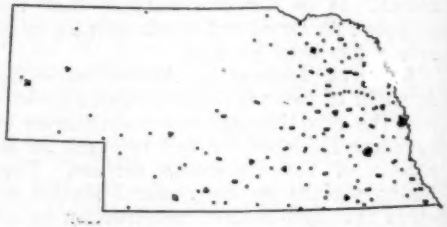

Fig. 1—Distribution of 244 practicing veterinarians of all ages in Nebraska as of June, 1947.

RESULTS OF SURVEY

There were 305 veterinarians in Nebraska in 1942 and 338 in 1947 (table 1). They were classified as to their type of employment into four general groups: practice, regulatory service of the federal government, commercial (such as manufacturing laboratories), and miscellaneous (city, county, and state institutions). The number in practice increased from 199 in 1942 to 244 in 1947. There was a moderate decrease of veterinarians in regulatory service of the federal government and those in commercial work. Of those in practice, very few give their entire time to small animal practice, and nearly all have a general farm practice. These men are in intimate contact with animal health problems and render direct attention to livestock. Thus, the general health of livestock is dependent mainly upon the service given by veterinarians in practice. The other types of service are intended to supplement that given by practitioners. Further study of the data was therefore confined to the group of veterinarians in practice.

Examination of the ages of veterinarians in practice yielded some interesting results. In 1942, nearly three-fourths were between the ages of 45 and 65 and only about one-seventh were less than 45 years of age

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*These included: Dr. J. D. Sprague, Nebraska Bureau of Animal Industry; Dr. J. E. Peterman, Bureau of Animal Industry, U. S. D. A.; Dr. L. V. Skidmore, Secretary, Nebraska Veterinary Medical Association; Dr. Carl Norden, Jr., all of Lincoln, Neb. Dr. Paul Matthews, Omaha, Neb., and others.

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(table 2). In 1947, about one-half of the veterinarians were between the ages of 45 and 65 and one-third were less than 45 years of age. A comparison by age groups showed that the greatest gain at the end of five years was in the three younger age groups (table 2).

TABLE 1—Employment of Veterinarians in Nebraska

Employment	1942	1947
Practice	199	244
Regulatory service (federal government)	68	60
Commercial	23	18
Miscellaneous (state, etc.)	15	16
Total	305	338

There were 227 veterinarians less than 70 years of age in Nebraska as of June, 1947. These were arranged according to ten-year age groups to determine the number of men needed for replacement as the veterinarians grow older and reach retirement age. Calculations for life expectancy of each group were based upon the "American Experience Mortality Table." No estimate could be made for transfer to other work or out of the state. In the ten-year period, 1947-1957, 87 additional veterinarians will have to be added to maintain

TABLE 2—Age Distribution of Nebraska Veterinarians in Practice

1942			1947			Difference after 5 years (No.)
Age	Number	Per cent	Age	Number	Per cent	
			20-24	11	4.5	
20-24	1	0.5	25-29	25	10.3	+24
25-29	6	3.0	30-34	23	9.4	+17
30-34	14	7.0	35-39	21	8.6	+ 7
35-39	4	2.0	40-44	5	2.1	+ 1
40-44	7	3.5	45-49	9	3.7	+ 2
45-49	25	12.5	50-54	27	11.0	+ 2
50-54	49	24.0	55-59	43	17.6	— 6
55-59	45	22.5	60-64	42	17.2	— 3
60-64	27	13.5	65-69	21	8.6	— 6
65-69	10	5.0	70-74	10	4.1	0
70-74	4	2.0	75+	7	2.9	+ 3
75+	7	3.5				
Total	199		Total	244		

The data for 1947 is offset to show actual difference in same age groups; i.e., group aged 20-24 in 1942 becomes group aged 25-29 in 1947.

227 veterinarians in practice. During the next ten-year period, 72 new men will have to be added. In the third ten-year period, 1967-1977, 36 veterinarians will have to be added. These additions have been placed in the youngest age group for purposes of calculation (table 3). On the basis of this estimate, Nebraska will require 195 additional practicing veterinarians in the next thirty years to maintain the number it had in June, 1947. This is an annual need of about seven new veterinarians.

The livestock situation in Nebraska varies greatly in different parts of the state. A large portion of the western section is grazing area for beef cattle production. The eastern third has a more diversified type of agriculture. In many localized areas, irrigation has led to a highly productive type of farming incorporating a livestock industry. The geographic distribution of practicing veterinarians in the state follows quite closely the pattern for diversified farming. Most are located in eastern and

TABLE 3—An Estimate of Practicing Veterinarians Under Seventy Years of Age Needed to Maintain Total Number

Age group	Year			
	1947	1957	1967	1977
20-29	36	87	72	36
30-39	44	33	80	66
40-49	14	40	30	73
50-59	70	12	35	25
60-69	63	55	10	27
Total	227	227	227	227

south central Nebraska. Figure 1 illustrates the distribution of the 244 veterinarians classified in table 2 for 1947. Some of these men are in retirement and not actively engaged in veterinary practice. Since retirement varies with individuals and cannot be determined exactly, all men whose work was practice have been included.

The data were examined to determine the schools in which Nebraska veterinarians have been trained. Only the group of 227 veterinarians in practice as of June, 1947, were considered. These data are given in table 4. It will be noted that most of the older men had received their training in veterinary schools no longer in existence. Three of the 11 schools currently producing graduates have provided the bulk of training. These are located in the neighboring states of Colorado, Iowa, and Kansas.

DISCUSSION

The factual results of the survey data lead to speculation of their significance and meaning. Two phases should be considered; first, with respect to the local situation in Nebraska, and second, how this information

may fit into the problem for the United States as a whole. A basic consideration is that a veterinarian will locate in an area and practice where he can make a living. A successful practice in any area depends upon the individual. The cattle raising area in Nebraska is without adequate veterinary service. The long distances involved are a detriment to the development of such service. However, we may anticipate that the ranchers will recognize the desirability of having qualified veterinary service available to them and of having some arrangements worked out. This would mean more veterinarians. The development of irrigation projects will lead to a diversified type of farming in areas where it does not now exist. These areas will require more service. The actual number of men needed for these contemplated increases in veterinary service is impossible to predict. Though the figure of seven new men per year was found necessary to maintain the number of practicing veterinarians, this is unquestionably too low to supply the needs in Nebraska. An estimate of ten men per year would be more reasonable and would provide for a very moderate expansion of service. This estimate does not consider the number of men needed as replacement for other types of veterinary service. Few are engaged in commercial and institutional work, and replacement for these services would be very small in comparison to the large group of practitioners. The number of men employed by the federal government is larger and no doubt a significant number of replacements would be required in their ranks. Calculation for this replacement would need to be made by the federal government.

The survey data of veterinarians in Nebraska has particular significance with respect to education. The ten veterinarians per year that Nebraska needs will be trained in veterinary schools outside the state. As Dean C. H. Stange stated,[3] "Each one of the veterinary colleges is a part of the system of veterinary education in the United States. The veterinary colleges are not strictly state institutions. All are on a level in every sense except finance. There are 11 veterinary colleges and 48 states or an average of 4 4/11 states per school. What each state having a veterinary college does, therefore, is of concern to more than the state in which the school is located." This statement had a significance when it was written in 1930 and probably has a greater significance today. The number of veterinary schools in the United States has increased to 17. Seventeen good schools should be adequate to meet the needs of the United States. A survey of the entire United States, similar to that conducted for Nebraska, would be helpful in estimating the needs for the nation.

The present situation of veterinary colleges accepting only their own state residents as students can not last. These 17 states should not hope to provide veterinarians for the entire country from their

TABLE 4—Training of 227 Veterinarians Under Seventy Years of Age Practicing in Nebraska June, 1947

School	Number	Age				
		20-29	30-39	40-49	50-59	60-69
Existing Schools						
Alabama Polytechnic	0	0	0	0	0	0
Colorado A. & M.	29	13	12	3	1	0
Iowa State College	23	7	8	2	5	1
Kansas State College	45	12	21	6	6	0
Michigan State College	2	2	0	0	0	0
New York State Veterinary College	1	1	0	0	0	0
Pennsylvania University	0	0	0	0	0	0
Ohio State University	2	0	1	0	1	0
Ontario Veterinary College	1	0	1	0	0	0
Texas A. & M.	2	1	1	0	0	0
Washington State College	0	0	0	0	0	0
Schools Out of Existence						
Chicago Veterinary College	23	0	0	1	10	12
Indiana Veterinary College	1	0	0	0	1	0
Kansas City Veterinary College	70	0	0	1	32	37
McKillip Veterinary College	8	0	0	0	2	6
Saint Joseph Veterinary College	18	0	0	1	10	7
U. S. College of Veterinary Surgeons	1	0	0	0	1	0
George Washington University	1	0	0	0	1	0
Total	227	36	44	14	70	63

own residents. It is likewise unjust for the other 31 states to expect the existing institutions to continue to train veterinarians for them. This problem has existed for many years and was discussed by Dr. Stange in his report on professional veterinary medicine which was an exhaustive survey of veterinary education. The time may be propitious to develop a more sensible arrangement than has existed. Veterinary schools must have some plan to include students from more than their own state. The various states not having veterinary schools should make a reasonable estimate of their needs and so far as is possible have their own citizens trained in veterinary medicine. In return for this training, they should compensate that state at least to the pro-rated cost per student per year. This compensation could be used in expansion and improvement of the veterinary schools. Such a plan could operate on monies included in the legislative budget for the state college or state university. Candidates from a state not having a school would have to submit their applications to the veterinary school of their choice and stand on their own merits in competition with other candidates for admission. The selection should be made by the veterinary school and not the state institution from which they originate.

Another aspect of the system should be given consideration. There is a tendency for some schools to dominate particular geographic areas. This is not good since it may lead to provincialism. Nebraska has been in a fortunate position in that it has a good representation of graduates from three schools in neighboring states. Such a situation should be encouraged and diversity of training fostered by the different states.

SUMMARY

A survey was made of the veterinarians in Nebraska for 1942 and 1947. The number of veterinarians in practice increased in the five-year period by about one-fourth. The number of veterinarians needed as replacement for general practice because of retirement and mortality for the next thirty years was estimated at ten per year. This estimate does not include requirements for other activities nor for any marked expansion of general practice. A plan whereby existing veterinary schools can train these men with support from other states is suggested.

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Foot-and-Mouth Disease Quarantine Area Reduced

The third reduction since last March in the size of the foot-and-mouth disease quarantine area was announced by the joint Mexican-United States commission on Sept. 18, 1948. The two previous moves freed nearly 7,800 sq. mi. of land from quarantine, and the September move trimmed off an additional 24,000 sq. mi., mainly in the north-central and northwest parts of the zone of infection. Most of the freed territory was found never to have been infected, while a few parts of the area contained only small pockets of infection that were eliminated by slaughter and disinfection of premises.

The vaccination program is picking up momentum, informed sources have reported, and it is predicted that the Mexican laboratories now established for vaccine production will be able to turn out up to a million doses a month, beginning this month. Seventy vaccination teams have been organized, each composed of one Mexican veterinarian and two assistants. A team is expected to vaccinate 600 animals a day, which means that, vaccine supplies permitting, a million animals per month can be immunized.

The Burden of Printing. — The bulk of noteworthy information coming to light in veterinary medicine and closely related branches of knowledge is getting too heavy for the publishers to bear. Authors must get accustomed to writing shorter articles and readers to more and more abridgment. We are living in a period of staggering technical progress that calls for a revamping of the present literary set-up. Abstracts and synopses of technical material are becoming more important and more numerous in the effort to cover all of the ground.

Cyclic Variations in Prevalence of Foot-and-Mouth Disease

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THE EARLIEST known description of foot-and-mouth disease was recorded by Hieronymus Fracastorious of Verona in his classical treatise on contagions. He described a contagion in 1514 in Italy, which has been recorded by other workers,[1, 4] as foot-and-mouth disease. A careful search of earlier literature might show that the disease played its part prior to 1514.

Little can be found regarding the early history of the disease, which may be due to the fact that it was not considered important. To the veterinarians of the mid-Victorian epoch under the shadow of rinderpest, foot-and-mouth disease seemed a trivial matter. There are cursory references to epizoötics even in the eighteenth century and those of 1833 are mentioned in many textbooks but, as appears from the discussion at the First International Veterinary Congress, the subject did not attract much notice.

REVIEW OF THE LITERATURE

Since 1863, however, there has been a change in relative values so that copious material on foot-and-mouth disease has become available, especially in the last forty or fifty years. This change in attitude occurred probably because of increased severity of the disease. Between 1870 and 1900, severe epizoötics occurred in European countries. Germany seemed to be the center of the most severe outbreaks and, therefore, a great deal of work on foot-and-mouth disease was done by German investigators. Chief among these workers were Löeffler and Frosch,[7] who in 1897 proved that foot-and-mouth disease is transmissible by means of filtrates of the contents of the bladders of sick animals. This was the first time the proof of a filterable stimulus was discovered for a disease of animal origin.

The next step forward was in 1899, when Hecker[8] reported the guinea pig susceptible to infection with foot-and-mouth disease virus. His discovery did not attract attention, and it wasn't until 1920-1921 that Waldmann and Pape,[9] demonstrated that guinea pigs could be used satisfactorily for research on foot-and-mouth disease. They described typical lesions in a guinea pig of 400 Gm. They found that after intravenous injection of the virus, vesicles developed on the legs in three to four days but mouth lesions were not usually observed. Gins and Krause,[10] in 1924, mentioned that a guinea pig of an average weight of 200 to 300 Gm. should be used, since in smaller animals the conditions are less favorable. In 1929, Trautwein[11] stated that in estimating activity of the virus, the most constant results are obtained with half-grown guinea pigs of 350 to 400 Gm. Maitland,[12] in 1928, suggested that mechanical pressure is to some extent responsible for the localization of the lesions on the pads of the feet after intramuscular injection of the virus. Also in 1928, Olitsky[13] showed that, for diagnostic purposes, it is necessary to use vesicular material not more than two days old.

Many fundamental discoveries related to the disease were made during the period 1920 to 1932. In 1922, Vallée and Carré[6] discovered the existence of two types of foot-and-mouth disease virus, each of which immunized animals against itself, but the two viruses would not immunize against each other. Both produced typical disease and these could not be distinguished clinically with certainty. One virus was designated type A (Allemand, French for Germany); the other was called type O (for Oise). The same year (1922) Gins[23] described cell inclosures in tongue epithelium of sick guinea pigs. These inclosures were not regarded as specific, however. .

In 1926, Waldmann and Trautwein[14] announced three types of virus found in Germany, designating them A, B, and C. Two corresponded to the French types, A (French stock O), B (French stock A), and the third type C, deviated from the other two. To avoid confusion, the French designations were retained so that the three types are A, O, and C. The pure types are obtained by repeated transmission through guinea pigs. Differentiation of types can be accomplished with the aid of susceptible animals, guinea pigs usually being employed. By having stocks of animals immune to each of the three types of virus, the type of the unknown virus is indicated by the group which proves to have protection against it.

Variants of the three types have been recorded by several workers. In 1930, Trautwein and Reppin[3] described further variants, and in 1936, Lawrence[5] observed a new variant in South Rhodesia. In 1930, the confidence of German workers in the comprehensiveness of the immunity produced by the three standard types was shaken by the frequent occurrence of disease in herds which had previously been attacked, where the type of virus appeared at first to be the same in both outbreaks. British workers[2] recorded that the relatively high proportion of unclassified strains observed in their work was sufficient to indicate that the accepted

"The fact that a disease of so pronounced a character can linger for so protracted a period with long intervals of apparent freedom between the supposed termination of the old and the commencement of the new center, accentuates the importance to be attached not only to early diagnosis but also to the rapid application of restrictions on movements in wide districts."—Greenwood.[4]

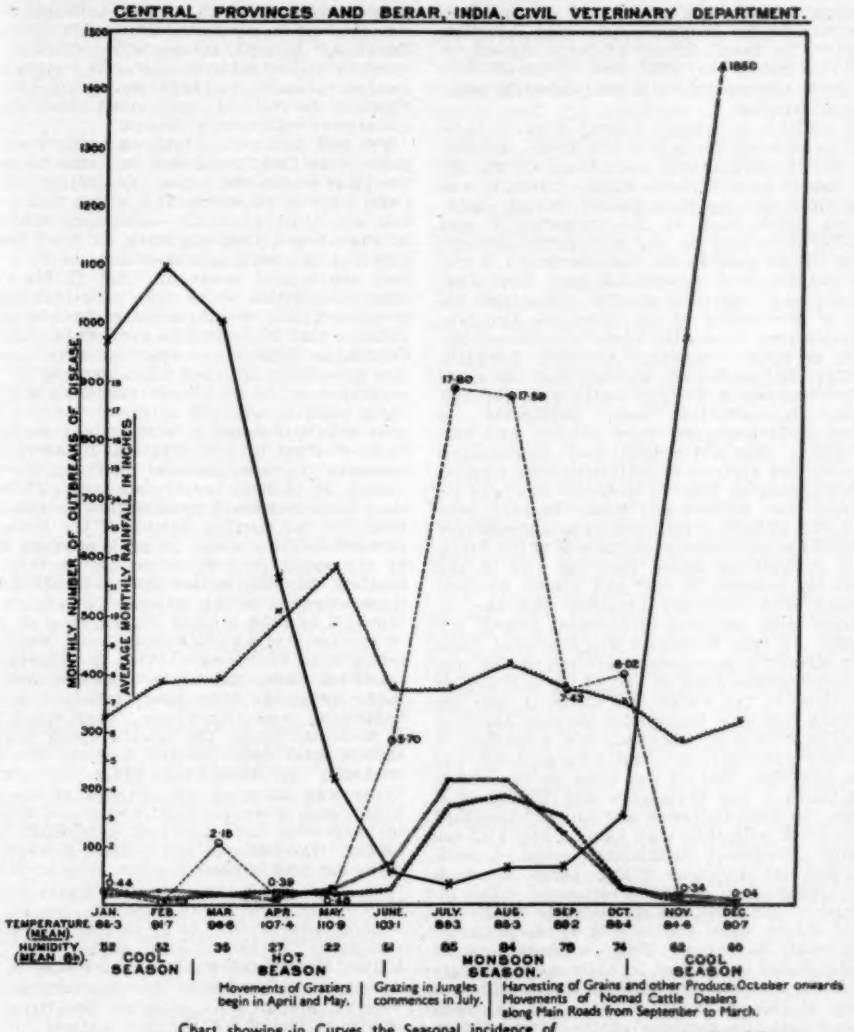

CENTRAL PROVINCES AND BERAR, INDIA. CIVIL VETERINARY DEPARTMENT.
MONTHLY NUMBER OF OUTBREAKS OF DISEASE.
AVERAGE MONTHLY RAINFALL IN INCHES
1850
17·80
17·58
5·70
2·18
0·44
0·39
0·48
0·34
0·04
JAN. FEB. MAR. APR. MAY. JUNE. JULY. AUG. SEP. OCT. NOV. DEC.
TEMPERATURE (MEAN). 64·3 91·7 96·6 107·4 110·9 103·1 89·3 88·3 88·2 86·4 84·6 80·7
HUMIDITY (MEAN 8h). 52 52 35 27 22 51 85 94 78 74 62 60
COOL SEASON
HOT SEASON
MONSOON SEASON.
COOL SEASON
Movements of Graziers begin in April and May.
Grazing in Jungles commences in July.
Harvesting of Grains and other Produce, October onwards
Movements of Nomad Cattle Dealers along Main Roads from September to March.
Foot-and-Mouth Disease.
Rinderpest.
Hæmorrhagic Septicæmia
Black Quarter.
Average Monthly Rainfall.

Chart showing in Curves the Seasonal incidence of Foot-and-Mouth Disease in Relation to that of the other Most Prevalent Infectious Diseases of Cattle during the Year 1929. The Average Monthly Rainfall over the six year period 1926-31 is also given on a Curve, and the Figures for the corresponding Average Mean Temperature and Mean Humidity (8 h.) are given below the Chart.

—*From Ministry of Agriculture and Fisheries, Great Britain*

Chart 1

system of classification was still incomplete. Their later observations, more particularly further experiments in cattle, led to the conclusion that type-determination carried out in guinea pigs could not always be accepted as accurate, and that type-determination in guinea pigs should be accepted with some reserve until further work was done.

Besides the determination of types by means of guinea-pig experiments, Professor Ciuca,[18] in 1929, determined types with guinea-pig aphthes as antigen by means of type-specific

complement binding. Ciuca studied six strains of virus in Rumania and found considerable difference in the immunity following infection produced by them, though all were classed as type O. Helm,[16] in 1933, also indicated that the three types could be distinguished by complement fixation.

In addition to typing, several workers have tried to estimate the size of the virus. Löeffler and Frosch showed that foot-and-mouth disease was caused by a filterable virus. Later, it was recognized that the virus passed through earthenware filters such as the Berkefeld V and Mandler filter candles; the more permeable porcelain filters, such as the Chamberland L 1 and L 5 candles; and a Seitz asbestos filter disc, without any great loss of titer. The high degree of filterability of the virus was found to resemble very closely the bacteriophage and the virus of tobacco mosaic. In 1926, Levaditi, Nicolau, and Galloway[17] showed that the virus of foot-and-mouth disease would pass through alcohol-ether-collodion sacs, permeable to amino acids, peptones, some protein, and bacteriophage, but which held back complement, tetanus, and diphtheria antitoxins, and trypsin, which suggested that its order of size was relatively low. Olitsky and Boez,[18] in 1927, used Bechhold ultrafilter membranes in an endeavor to arrive at an estimate of the size of the virus. They roughly estimated that the size of the virus lay between 20 mμ* and 100 mμ by comparison with collargol particles and the relatively large particles of colloidal arsenic trisulfide. In 1929, Modrow,[19] who also used Bechhold ultrafilter membranes, arrived at the conclusion that the order of size of the particles of the virus of the Vallée and Carré O type lay between that of a hemoglobin particle and that of an egg white or litmus particle, according to Modrow's calculations about 2 mμ to 3 mμ, and was less than that of the virus of the Vallée and Carré A and Waldmann and Trautwein C types. In 1931, Galloway and Elford[20] described their work with the virus, using a series of collodion (gradocol) membranes prepared with uniform but extremely minute pores, of which the average size could be estimated. The diameter of the virus was estimated to be about 8 to 18 mμ or about 0.01 to 0.02 of the diameter of a small bacterium. These workers detected no difference in the size, by their more accurate methods, between the viruses of the different types of foot-and-mouth disease. It has been shown that the particles of the virus of foot-and-mouth disease are smaller than those of any other virus so far examined, with one possible exception, the virus of human poliomyelitis. In 1937, by the aid of the centrifugal method, Elford and Galloway,[2] determined the size to be about 20 mμ. Barnard[21] in 1937, studying photomicrographs taken by ultraviolet light, found the diameter of the virus to be about 40 mμ. The discrepancy between the estimates of the size of the virus can not yet be explained.

Regarding cultivation of the virus, Hecke[22], in 1930, 1931, and Striegler,[44] 1933, reported from Riems successful propagation of the virus with guinea-pig tissues in large flasks and in considerable quantities, so that sufficient virus was obtained to immunize cattle. Maitland and Maitland,[24] in 1931, successfully cultivated the virus in tissue cultures containing guinea-pig embryo tissue and clotted guinea-pig plasma. Frenkel,[3] in Holland, propagated the virus in cultures of calf-embryo tissues.

Pyl and Klenk,[25] in 1933, and Galloway and Elford,[20] in 1935, found that in buffer solutions the virus shows two zones of stability—an optimal zone at pH 6.5 to 10.0, and a less favorable zone at pH 2.5 to 3.5. Sichert and Modrow,[2] in 1931, found that the virus in dried lymph survived *in vacuo*, a temperature of 70 C. for two and a half hours and 122 C. for three minutes. British workers, in their 1937 report, mentioned that the degree of resistance of the virus to heat is dependent upon water content. Completely dried virus, when the water content was practically nil, and when exposed to temperatures of 130 C. for one minute, 120 C. for three minutes, and 100 or 110 C. for five minutes, were still found to be infective. Completely dried virus in milk was still infective after exposure to temperatures of 100 C. for two minutes or 90 to 95 C. for five minutes. These results were mentioned as important because they indicated the possible danger of the spread of foot-and-mouth disease by milk powders dried by the spray method, unless satisfactory precautions for sterilization are taken other than those essential to this process. Stockman and Minett,[26] in 1926, studied the survival of virus in carcasses of animals slaughtered while suffering from the disease. This is important in countries where the disease does not exist, for many outbreaks have been traced to garbage containing meat trimmings. They found that, in muscular tissue, the acidity which develops shortly after death usually destroys the virus within a few days, even under refrigeration. Virus was found in the marrow of the long bones, even when the meat was stored in brine for more than forty days and occasionally much longer. The tissue of foot vesicles also retained virus for long periods.

History of Immunizing Agents

Some mention may be given the historical development of immunizing agents. In 1926, Vallée, Carré, and Rinjard[45] succeeded in rendering cattle immune by the use of a formolized vaccine, prepared by exposing the virus to a concentration of 0.5 per cent formol for four to seven days at room temperature. Krag and Schmidt,[28] in 1937, indicated that complement-fixing bodies may be found in the blood serum of convalescent guinea pigs. In 1938, Waldmann[29] described a vaccine in which the virus is adsorbed on to aluminum hydroxide and treated with 0.05 per cent formol for two days at 25 C. The first experiments with virus treated with crystal violet dye were made in Switzerland by Graub,[32] in 1939, shortly before World War II. It has been found that virus treated with crystal violet and incubated for a few days at 37 C. is noninfective and induces a high degree of immunity lasting about six months or longer. More recently, in 1946, Rosenbusch, Decamps, and Gelormini[46] of Argentina described an in-

*Note: mμ=millimicron (one-thousandth of a micron, or one-millionth of a millimeter).

tradermal vaccine. This vaccine is alum-adsorbed, formol-killed, and has a high virus concentration (5%). The virus used for production of the vaccine was obtained from fresh tongue lesions of artificially infected susceptible cattle, and includes the three main types isolated in Argentina. Various convalescent and hyperimmune serums have been developed and used to produce passive immunity. The protection afforded by these is short, about two weeks, but this is often sufficient to protect herds which are in neighborhoods in which the disease has appeared.

In addition to developments related specifically to the size and types of the virus, variants, stability, and immunity, important developments have been made concerning the epizoötiologic aspects of the disease. Before discussing these, the epizoötiologic importance of multiple types of the virus should be pointed out. The fact that there are multiple types of the virus and variants of these types makes possible the re-infection of animals that have already passed through one attack of the disease. Thus, an epizoötic caused by one type of the virus may be followed by another epizoötic in the same area and in the same herds, immediately following the first epizoötic.

TYPES AND VARIANTS

Evidence has shown that seasonal variations may occur in the prevalence of foot-and-mouth disease. Edwards,[2] reviewing the work at the Lister Institute of Preventive Medicine, London, discusses fluctuations of the disease in India in 1929. He considered foot-and-mouth disease in India as essentially a cold weather disease, showing that it is prevalent when climate and pastoral conditions have operated so favorably upon the cattle that they are in their best condition. The cattle are dependent almost entirely upon the natural herbage, since there is little fodder storage for periods of scarcity. Afterward, with the advent of the hot weather from March to the middle of June, through tropical heat and lack of rain, the fodder resources disappear to such a degree that a large proportion of cattle experience extreme feed shortage and may die from starvation. At the same time, foot-and-mouth disease diminishes to such an extent that only rare, mild outbreaks are reported. With the break of the monsoon, natural food supplies again become abundant, and the cattle improve and attain prime condition during the cold weather, at the end of the monsoon period. Then, after the end of the monsoon, foot-and-mouth disease once more becomes prevalent. These variations were recorded for the Central Provinces of Berar, India (chart 1), where there is little variation in the climatic conditions from year to year but a regular alternation of hot and cold weather conditions every year. Since the fodder supplies are directly dependent upon the rainfall, the condition of the cattle also changes markedly, depending upon the precipitation during the year. Edwards also pointed out that, while fluctuations in prevalence of foot-and-mouth disease occurred with the different seasons, rinderpest showed little fluctuation, and hemorrhagic septicemia and blackquarter were essentially monsoon diseases, their curves following that of the rainfall.

Further evidence of seasonal variation was described by Bevan[3] in 1932-1933. In connection with epizoötics in Southern Rhodesia in 1931, he described a mild form of foot-and-mouth disease which spread slowly and could be transmitted only with difficulty. This attenuated form occurred in the dry season but became more active and severe after the rains. The mild character of the disease was in part determined by the scarcity of fodder, and the more severe phase of the epizoötic reappeared when growth of herbage had improved.

Hutyra and Marek[2] mention that on the continent of Europe foot-and-mouth disease spreads with particular rapidity during the warmer period of the year, while in the winter it is not so extensive. They attribute this increased prevalence of the disease during warm weather to the greater traffic in cattle. Thus, there seems to be a marked difference in the seasonal distribution of foot-and-mouth disease in temperate and tropical climates. There is need for further study along these lines.

Age, sex, nutrition, and intercurrent bacterial infection have been studied in connection with foot-and-mouth disease. British workers[3] found that rats, guinea pigs, and hedgehogs in prime condition, and in the prime of life, are most susceptible to the disease. A highly nutritious diet associated with active growth predisposes strongly to infection, especially in rats. Several workers have observed that large, well-nourished guinea pigs, swine, cattle, rats, and hedgehogs show more severe signs of foot-and-mouth disease than small and ill-nourished individuals. Edwards, working with rats and guinea pigs, found that the factors of age, size, diet, or concurrent infection, influenced the susceptibility to inoculation of the virus. Very young rats and guinea pigs, when inoculated with virus, either showed no signs of infection or had only slight lesions locally. Old, fully grown animals also were sometimes less susceptible than those actively growing. Experiments with groups of animals fed on different diets showed that half-grown rats, rapidly gaining in weight on a highly nutritious diet, could be infected with a much smaller dose and were more severely affected than those less well fed. Male rats usually gained weight and became highly susceptible, on specially nutritious diets, more rapidly and definitely than females, perhaps because they ate more greed-

ily. An intercurrent bacterial infection had a similar effect to underfeeding and lessened the symptoms of the disease.

These observations are in marked contrast to the generally accepted observation that young, poorly nourished, and feeble animals are the most susceptible to many infectious diseases. How far similar conditions of age and nutrition are effective in farm animals has not been investigated, but tuberculous and other unhealthy cattle are said to die frequently of foot-and-mouth disease; on the other hand, fat pigs are known to suffer more than others, partly because their weight predisposes to damage to the foot and loss of the hoof. This phase also needs further study, primarily with farm animals. This could be accomplished either experimentally or by accurate field studies during an outbreak.

I
II
Inject fresh vesicular fluid intramuscularly or intravenously.
Inject fresh vesicular fluid into the mucosa of tongue, lips, or dental pad, or rub into scarified areas.
Both develop the disease if Foot-and-Mouth Disease. Vesicles appear in the mouth in 12-36 hours after onset of fever, eruption occurs all at one time.
Both fail to develop the disease if Vesicular Exanthema.
Will not develop Vesicular Stomatitis.
Will develop Vesicular Stomatitis. Vesicles occur in series over a period of a week.
Inoculation of swine is useless since the animals usually will develop disease when injected as above if any of the three viruses are present.
Inject into mucous membrane of the dorsum of the tongue or introduce by scarification.
Resistant to Foot-and-Mouth Disease
Will develop Vesicular Stomatitis
Vesicular Exanthema, mildly pathogenic, some develop small vesicles near point of inoculation, others do not.
GUINEA-PIG - Inject into the foot pad.
Develop Foot-and-Mouth Disease.
Will not develop Vesicular Exanthema by this method.
Develop Vesicular Stomatitis.

Chart 2—Differential Diagnosis

TRANSMISSION AND RESERVOIR HOSTS

Other factors important to an epidemiologic approach are the means of transmission and possibility of reservoir hosts. These become increasingly important when attempts are made to explain the rapid spread of the disease and its occurrence with no apparent origin. The disease is transmitted by numerous means, but more commonly by contact with infected animals or contaminated materials. The majority of the outbreaks in the United States have been attributed to the introduction of contaminated material. The possibility of spread by ticks, flies, birds, and carriers has been studied.

In 1925, Bedson, Maitland, and Burbury[2] obtained negative results in attempts to transmit the virus from infected to healthy guinea pigs by means of the bedbug, *Ciruex lectularius*. Hecker[2] suggested that transmission by flies was possible under certain conditions. Lebailly,[2] in 1924, considered that flies could play little part in transmission of the disease, and Kunike,[2] in 1927, as a result of experiments with *Musca domestica* and *Stomoxys calcitrans*, came to a similar conclusion. The possibility of the disease being spread within a limited area by flies is, however, not remote if the infestation by flies is sufficiently heavy. The virus was found to remain on the bodies of flies for forty-eight hours, and eighteen hours in their digestive tubes. Mohler,[2] in 1926, in his investigations into the cause of the recurrence of foot-and-mouth disease in Texas in 1925, found that ticks, *Boöphilus annulatus*, taken from cattle in the febrile stage of foot-and-mouth disease contained virus. Galloway[2] made numerous attempts to infect ticks from guinea pigs and to pass the disease to other guinea pigs. The virus remained active in ticks fourteen days but the transmission by these bites was not effected.

In 1920, Stockman[2] could find no definite correlation between the migratory periods of birds and outbreaks of foot-and-mouth disease among farm stock. He considered the possibility of the disease being spread by birds such as ducks, geese, and seagulls which may, outside the migrating seasons, travel long distances for food. Minett,[2] in 1927, made attempts to infect calves with the excreta of fowls and seagulls which were being fed on virulent material. These were unsuccessful, although it was shown by guinea-pig tests that occasionally, up to about the twenty-fourth hour, the virus might be recovered from the intestine and excreta of fowls fed on massive doses of material containing virus.

Very little evidence has been presented concerning carriers. Some workers have believed that cattle acting as carriers was the most likely explanation of recurrence of the disease in the same places in successive years. Brandt,[2] at Riems, found scarcely any evidence of late infectivity and was satisfied that the rare occasions on which it was possible to detect virus were due, not to true infection with multiplication and excretion of virus but to dust or dirt accumulated in cracks in the hoof. Waldmann[2] reported that by special methods the virus could be found in the urine and blood of a proportion of cattle and guinea pigs many weeks after the attack. A new technique for extracting and concentrating the virus was used to examine the material. Attempts to repeat these experiments by British workers were not successful.

The possibility of reservoir hosts has been studied by British workers,[2] with brown rats, foxes, and birds showing strong possibilities for being mechanical or pathologic carriers. It was difficult to trace the disease to rats without large experimental inquiries, since the lesions often did not show much, and hardly at all in the young ones. Workers were impressed by the great abundance and well-marked runways of foxes which roamed over large areas. Field voles were mentioned as a means of infecting hay. It was indicated that voles might be killed by mowing machines in hay fields and might infect hay used subsequently for winter fodder. The hedgehog was also considered as a possible source of infection because of its high susceptibility to the virus. Hedgehogs winter in close proximity to cattle, and their ticks wander away from the host. One way to explain the character of sporadic outbreaks would be to assume that the ectoparasites, especially ticks, of some wild animals can harbor the virus and transmit infection quite a long time after leaving the host. For example, these workers found that hedgehogs are liable to serious mortality in the winter months (the time of foot-and-mouth disease outbreaks); that they are heavily parasitized by ticks capable, at any rate on occasion, of biting domestic stock; and that hedgehogs do sometimes hibernate in cow sheds. Deer and other wild animals often have been indicated as possible sources of infection. In the California outbreak (1924-25), 22,000 deer were slaughtered to prevent possible remaining foci of infection. In countries that have only periodic outbreaks of the disease, it is highly essential that it be controlled among wild species as well as among the domesticated animals.

Thus far, the history and some epizoötiologic aspects of foot-and-mouth disease have been discussed. It is now necessary to deal with specific countries to determine the variations in the prevalence of the disease there.

Germany

A detailed study of the outbreaks of foot-and-mouth disease in Germany has not been attempted due to the difficulty of translating the numerous articles written on the subject. If one could obtain detailed information concerning the disease there, no doubt it would prove to be of great interest. Certainly, few countries have been involved to the extent that Germany has, especialy during the period 1886 to 1921.

The earliest record of an epizoötic of foot-

and-mouth disease in Germany was recorded by Ernst[28] as 1731 and 1732. Though the disease evidently existed prior to this time, records concerning its introduction into Germany have not been found. Since 1731, periodic epizoötics have occurred (table 1A).

An outbreak which appeared in 1886 increased steadily until 1892, when it diminished gradually for a few years, but again reached great

TABLE 1A — Years when Foot-and-Mouth Disease Reached Epizoötic Proportions in Germany

1731-32	1869
1761-63	1871-72
1776-77	1874-78
1785	1883-84
1809-12	1890-93
1819	1896-97
1823	1899
1837-42	1911
1845-46	1914-15
1855-57	1920
1862	

(1920-21—loss to the livestock industry $119,000,000)

proportions in 1899. Thereafter, it continued to a greater or less extent until, in 1911, it attained a virulence previously unequaled, and approximately 1 out of 7 of the susceptible animals was affected. The government attempted to control outbreaks by the slaughter of infected herds, but the disease was too firmly established in various portions of the country for this method to succeed, and it was abandoned.

Between 1886 and 1914, there was not a year in which no farms were uninfected with foot-and-mouth disease, but the variations from year to year were enormous. In 1909, only 33 new outbreaks were reported in the whole empire; in 1911, there were nearly a quarter of a million. In the former year, the total number of farm animals involved was less than 2,000; in the latter, more than 7½ million. During this period, there were five years, 1892, 1896, 1897, 1899, and 1911, when more than a million animals were involved; in 1892, 1899, and 1911, respectively, 4 million, 4 million, and 7½ million; the separate outbreaks were 105,929, 162,657, and 239,342. Between 1900 and 1910, the disease, although never absent, was relatively unimportant.

The incidence of foot-and-mouth disease from 1886 to 1921 was more or less typical of most countries of continental Europe. While the disease was enzoötic during most of this period, at certain intervals it assumed epizoötic proportions, the peak being reached in 1919 to 1921, when the most severe outbreak occurred, with the malignant type of the disease predominating in certain sections.

The period 1886 to 1905 (graph 1) presents some interesting features. In the first few years the disease did not assume dangerous proportions, but after three years it spread rapidly, and after another four years it reached its first climax, then went down rapidly for a couple of years, but increased again and reached its second climax in the thirteenth year. After that, the figures fell appreciably, and after one or two fluctuations the number of cases was gradually reduced to an almost insignificant figure. The Germans were gratified and proud of this favorable result, which was attributed to the more stringent regulations imposed by the public authorities.

It again asserted itself at the end of 1905, but in 1906 only 55 communes were attacked by it; in 1908, 324 communes and more than 18,000 head of cattle were affected. In 1909, the country was declared free again, but in December the disease cropped up on a private estate. Bang[3] states that during this period the disease was introduced into Germany from neighboring countries, especially Russia, where it seemed to have established itself permanently, and from France. He also attributed negligence on the part of the population, concealing of cases of infection, and careless disinfection to the reappearance of the disease.

A great epizoötic occurred in 1911 involving most of central Europe. In May, 1910, the disease broke out in East Prussia and simultaneously at Chemnity in Saxony. Said to have been introduced from Russia and to have spread from cattle bought in a large market in East Prussia, by degrees it extended from east to west over a major part of the German empire. In September, 1910, it was only to be found on 244 estates, but on July 1, 1911, more than 20,000 cattle were infected, and on Sept. 15, 1911, there were 37,180 affected. Austria and

TABLE 1B—Animals Involved in Outbreaks of Foot-and-Mouth Disease in Germany, 1886-1911

Year	Cattle	Sheep & goats	Swine	Total animals	Separate outbreaks
1886	5,000	.....	.....	.....	.....
1887	12,000	.....	.....	.....	.....
1888	37,000	.....	.....	.....	.....
1889	262,000	.....	.....	.....	.....
1890	432,000	.....	.....	.....	.....
1891	394,000	.....	.....	.....	.....
1892	1,504,000	.....	.....	4,000,000	105,929
1893	204,000	.....	.....	.....	.....
1894	93,000	.....	.....	.....	.....
1895	195,000	.....	.....	.....	.....
1896	710,000	.....	.....	.....	.....
1897	537,000	.....	.....	.....	.....
1898	462,000	.....	.....	.....	.....
1899	1,885,774	1,565,365	814,862	4,000,000	162,657
1900	430,000	.....	.....	.....	.....
1901	80,000	.....	.....	.....	.....
1902	20,000	.....	.....	.....	.....
1903	11,000	.....	.....	.....	.....
1904	51,000	.....	.....	.....	.....
1905	9,303	6,228	3,131	.....	.....
1906	No data	.....	.....	.....	.....
1907	No data	.....	.....	.....	.....
1908	18,773	19,029	16,081	.....	.....
1909	No data	.....	.....	.....	.....
1910	No data	.....	.....	.....	.....
1911	No data	.....	.....	7,500,000	239,342

Hungary were also severely attacked by the disease at this time, presumably through infection from Russia. In October, there were 111,382 infected cattle in Austria, and in September, 45,563 in Croatia and Slavonia. In France, 33,966 infected animals were noted in August, 1911, and in Belgium in July, over 50,000 head of cattle and 5,225 other animals. In Holland, 12,000, and at one time as many as 18,000, head of cattle were noted. In Italy, over 18,000 animals were attacked during the first week in August, in addition to 107,000 animals from the previous weeks. Thus, the 1911 epizoötic involved many countries.

Records concerning the history of foot-and-mouth disease in Germany from 1911 to date have not been located. The disease has been present, however, during certain periods. During 1938, more than 600,000 outbreaks occurred in Germany, the losses from which were estimated at more than £80 million. During 1940 and 1941, more than 89,000 outbreaks of the disease appeared.

Concerning cyclic variations in prevalence of the disease in Germany, the period 1886 to 1905 presents some indication of cyclic manifestation. During this period, two separate epizoötics occurred. The first noted increase came in 1889, attaining epizoötic proportions in 1892. After a three-year interval, the next increase occurred in 1896; and in 1899 an epizoötic. The second epizoötic was more extensive than the first.

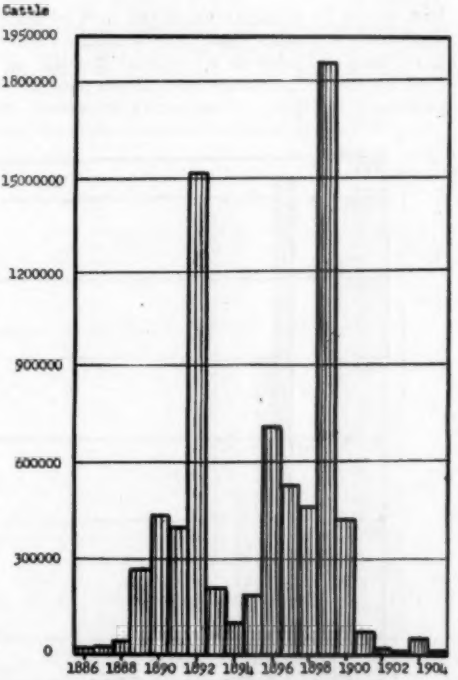
This period might be divided into three-year intervals. Starting in 1886, there were three years of low incidence of the disease; the next three years might be called intermediate, the number of cattle involved being several times the number in the first three years. The next year, 1892, an epizoötic occurred with extensive involvement. The next three years showed a decline, only to be followed by a three-year intermediate period, and finally another epizoötic in 1899. Thus, a six-year pre-epizoötic period and a one-year peak is noted in both cases. Whether this six-year phenomenon appeared in later years in Germany is not known.

Summarizing, it might be concluded that during 1886 to 1905, foot-and-mouth disease in Germany showed some evidence of cyclic variations in prevalence.

Great Britain

Foot-and-mouth disease was first recorded in Great Britain in 1839.[8] As the importation of animals was then prohibited, its introduction was apparently by indirect means. Appearing in Smithfield Market, London, and spreading to various centers in England, Scotland, and Ireland, it was prevalent until 1842, when it declined. It was again prevalent from 1845 to 1847; from 1849, when it extended all over the Britain, to 1852; from 1861, when an outbreak occurred in the Royal Agricultural Society's showyard at Battersea, to 1863; from 1865 to 1866, when the restrictive measures adopted for rinderpest were thought to serve as a check on the disease; from 1869, when the disease was first scheduled by Act of Parliament, to 1872; from 1874 to 1875; from 1876 to 1878, when rinderpest also existed; in 1879, when for the first time severely restrictive measures were taken respecting it under the Diseases of Animals Act of 1878, and proved an effective check; from 1880, when the disease spread from a foreign animals' landing place, to 1883; and declined during 1884 and 1885, to one outbreak only in 1886. The only record of the disease in the Isle of Man was 5 cases during 1883. There is no record of the disease in Ireland from 1883 to 1912. Owing to memorials by agriculturists to the Privy Council, the Act of 1884 was passed amending that of 1878, so as to more effectively deal with foot-and-mouth disease.

From 1887 to 1891, the country was free from the disease. In 1892, 95 outbreaks occurred, the disease having been introduced by



Graph 1—Cattle involved in outbreaks of foot-and-mouth disease in Germany (1886-1905).

animals from Denmark. In this year, slaughter was first resorted to by the Board of Agriculture for prevention of the spread of foot-and-mouth disease.

There were two outbreaks in 1893 and three in 1894. From 1895 to 1899, the country was again free from the disease. An act of 1896 required that all animals brought to Great Britain, the landing of which was not prohibited, would be slaughtered at the port of landing; therefore, since that time no such animals have been introduced into Great Britain, except for special purposes, such as for zoölogical gardens. In 1900, 21 outbreaks occurred; in 1901, 12 outbreaks; and in 1902, one outbreak.

TABLE 2—Outbreaks of Foot-and-Mouth Disease in Great Britain (1870-1926)

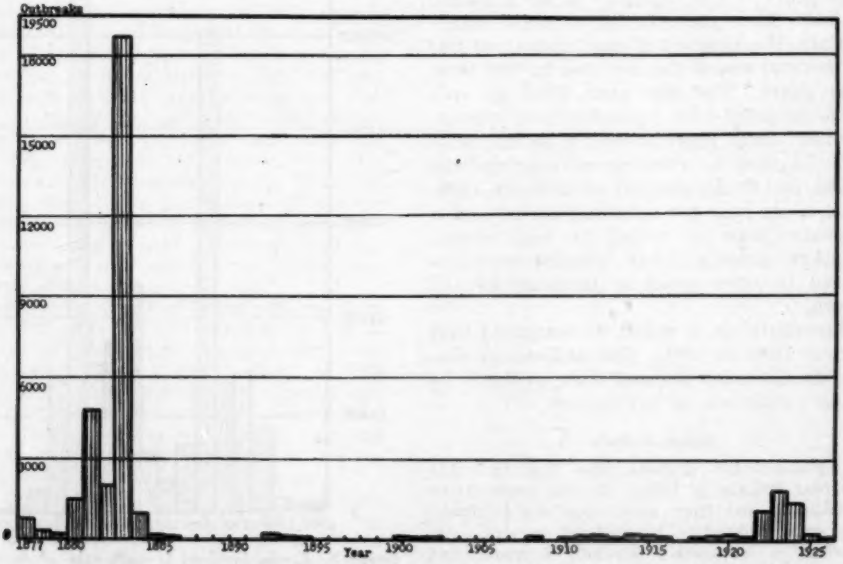
1870—27254	1889—**	1908—3
1871—52164	1890—**	1909—**
1872—*	1891—**	1910—2
1873—*	1892—95	1911—19
1874—*	1893—2	1912—83
1875—*	1894—3	1913—2
1876—*	1895—**	1914—27
1877—858	1896—**	1915—56
1878—235	1897—**	1916—1
1879—137	1898—**	1917—**
1880—1461	1899—**	1918—3
1881—4833	1900—21	1919—75
1882—1970	1901—12	1920—93
1883—18732	1902—1	1921—44
1884—949	1903—**	1922—1140
1885—30	1904—**	1923—1929
1886—1	1905—**	1924—1440
1887—**	1906—**	1925—260
1888—**	1907—**	1926—204

*No official record.
**No outbreaks occurred.

From 1903 to 1907, there were no outbreaks. In 1908, there were three outbreaks in Edinburgh believed to be due to foreign hay. This led to the passage of the Foreign Hay and Straw Order of 1908; 1909 was free, but in 1910 there were two outbreaks at Ripon, Yorks; in 1911, a total of 19 outbreaks.

In 1912, the number of confirmed outbreaks was 83 and they fell into three classes. The first included those directly traceable to animals landed from the "S. S. Slieve Bloom" on June 23, 1912. Papers connecting at least 40 of the outbreaks with the cargo of the ship were forged. It was proved that some of the animals on the "Slieve Bloom" had been in contact with foot-and-mouth disease on an Irish farm; at least 40 of the outbreaks were directly associated either with the beasts shipped, with stables occupied by them, or with persons having had contact with them; in some of the other outbreaks connection, if not proved, was possible. But among the 83 outbreaks were 26 which could in no plausible way be brought into association with the ship or her freight.

For instance, on the day she berthed, foot-and-mouth disease broke out on a farm at Penrith, and later in Sussex, Hampshire, and Kent, far beyond her possible sphere of influence. These 26 outbreaks, not all independent, reduced themselves to 11 distinct foci. If a generous supposition is made that all the other outbreaks should be debited to the "Slieve Bloom," it appears that of 12 foci, 11 could not



Graph 2—Outbreaks of foot-and-mouth disease in Great Britain (1877-1926).

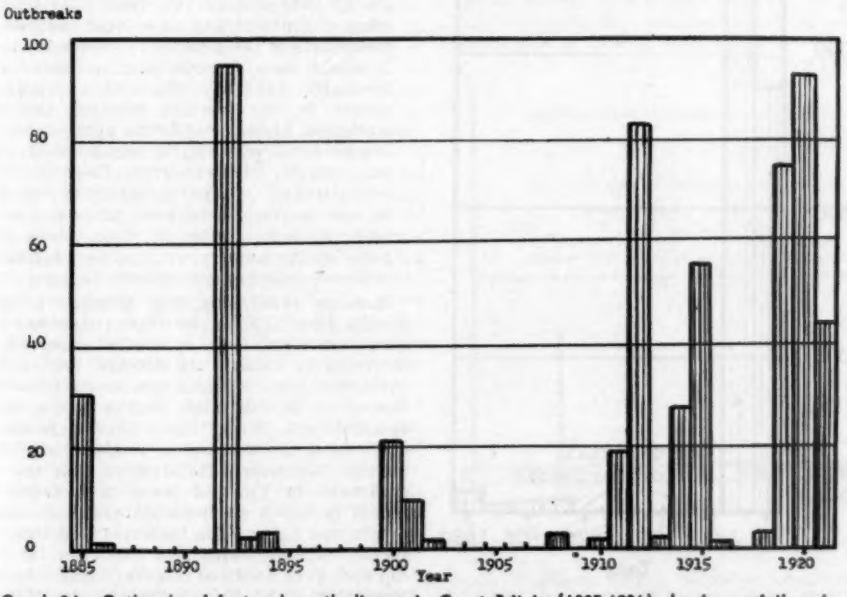
be traced to any agency outside of Great Britain. Among the endogenous foci, one of special importance was an outbreak affecting three farms in contact, direct or mediate, with 14 yearlings, 3 of which showed healed lesions of foot-and-mouth disease. The history of these animals was carefully traced and of their numerous contacts, two only, apart from the subjects of the outbreaks in question, become infected. Stockman[3] thought the incident illustrated further "the advantage of stamping-out measures, which should aim at leaving no recovered animals alive, with the risk of their becoming prolonged, though intermittent, disseminators of infection." Greenwood[4] mentions that this would involve the hypothesis that an animal cannot pass through an attack of the disease in a form clinically unrecognizable, or that is difficult to recognize, without being associated with animals suffering to an extent capable of detection. He states that the history of the cases among the yearlings hardly bears this out.

Greenwood indicates that one might suppose that the infectivity of the home-bred organisms, when passed through home-bred animals, is extremely low, but that a newly introduced strain, such as that brought from the Irish cattle of the "Slieve Bloom" was highly infective. This might explain why the spread of infection in the latter case was so extensive.

In 1913, there were only two outbreaks of foot-and-mouth disease. In 1914, although the number of outbreaks was not large (27), they were widely disseminated. A group was connected with the landing place at Birkenhead and formed the subject of a special inquiry, where experts differed as to the implication of certain imported Irish cattle.

Apart from this, the origins of outbreaks, including a series of 11 in Lincolnshire, could not be ascertained. The origin of the more numerous outbreaks of 1915 (56) also are unexplained. In the three following years, foot-and-mouth disease was unimportant, but in 1919 with the largest number of outbreaks (75) since 1912, no further discoveries were made. The report for the year 1919 by the chief veterinary officer included an interesting discussion of the subject.

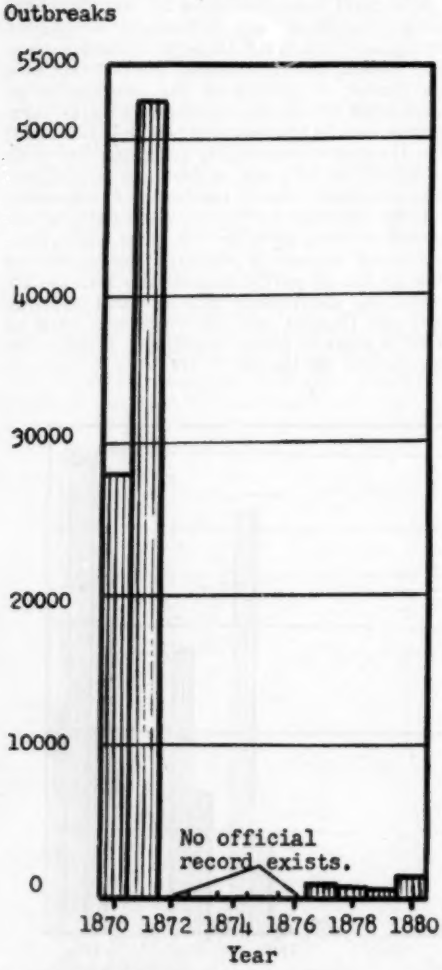
Stockman[4] remarked that "the way by which foot-and-mouth disease is brought into Great Britain and similarly situated countries from time to time, notwithstanding the fact that into the former, in particular, the importation of susceptible livestock is prohibited, is as mysterious as it is interesting." He noted, further, that the importation of hay and straw had been prohibited as long ago as 1908 and pointed out that the modal time of emergence of epizoötics did not correspond with the usual dates of migration of birds from the countries where foot-and-mouth disease is enzoötic. He suggested that of the 63 initial foci of the last twenty years, the distribution in space was not random and thought that the "evidence, such as it is, is most in favor of particles of virus being carried by the air." He was, in fact, re-



Graph 2A—Outbreaks of foot-and-mouth disease in Great Britain (1885-1921) showing variations in small outbreaks.

luctant to abandon the axiom that foot-and-mouth disease in England was always an imported disease. Of the 95 outbreaks in 1920, in no case could the primary cause be detected. In 1921, one or two outbreaks were thought to be traceable to 3 Irish stripper cows landed in March, but a large majority of outbreaks went unaccounted for. In 1922, the worst year since 1884, it was not possible to discover the primary sources of infection.

The most serious feature of the outbreaks in 1923 and 1924 was the multiplication of apparently widely separated centers of infection between which no connections (with a few exceptions) were traceable. There were no fewer than 91 separate infection centers from August, 1923, to May, 1924, inclusive, and for five months as many as 21 of these were active.[4] There occurred 1,140 outbreaks in 1922; 1,929 in 1923; 1,140 in 1924; a decline in 1925 to 260 outbreaks, and to 204 outbreaks in 1926.



Graph 28—Outbreaks of foot-and-mouth disease in Great Britain (1870-1880).

Table 2 includes a summary of the annual recorded outbreaks of foot-and-mouth disease in Great Britain from 1870 to 1926, inclusive. In a discussion of this table, Greenwood[4] gives pertinent information:

> It has some value as an indication of the trend but not very much value. Not only is there the difficulty that cattle, sheep, and pigs are all liable to suffer from the disease and the local distribution of animals at risk is not available, but we can obviously provide no statistics in the least comparable with either morbidity or mortality rates for human aggregates. It is usual to make a census of herds at intervals, but these are instantaneous pictures and cannot be supplemented, as can a census of men, by periodic registers of births, deaths, and migrations. If it were possible to compile much more detailed vital statistics, not for the whole country, but say, for one or two of the counties falling within the groups of frequently and rarely infected (primary infections) areas to which Stockman referred in the report of 1919, the result might be repaying. I mean, by detailed statistics, an exact register of births, deaths, and migrations of all stock (at least of cattle, sheep, pigs, and goats) over one or two years. At present, when the probability of a local outbreak in most parts of the country is reasonably large, it would be a more rewarding labour than normally (1927). The object would of course be to ascertain whether the vital statistical histories of farms upon which outbreaks occurred were, in any possibly material respect, different from those of farms not attacked. In particular, whether there be any correlation between frequency or extent of immigration of clean stock from parts of the country, or from the dominions, where foot-and-mouth disease is rare.

Records concerning the disease in Great Britain from 1926 to the present time have not been available, but outbreaks occurred, as indicated by Cabot.[28] In October, 1937, several outbreaks occurred and continued into 1938. Just prior to this time, France had a severe epizoötic, and Cabot[28] states that there was no doubt that the disease in England originated on the Continent. He stressed that the first outbreaks in England were in October, the month in which previous outbreaks of obscure origin had arisen. He indicated that this time factor, together with the localities involved, the arrival of flocks of migrant birds (starlings especially), and the routes of migration, all suggested strongly that these birds were me-

chanical carriers of the disease. He further relates that while cumulative experience leaves little doubt that birds may introduce disease, this factor does not operate every year, as obviously the danger is related to the incidence of the disease at the resting places of the migrant flocks on their way to Great Britain and, as this varies from year to year, so also does the incidence vary in Great Britain.

In 1942, outbreaks were attributed to the introduction of diseased animals from Ireland; in 1944, outbreaks occurred primarily in pigs. These outbreaks were thought due to the introduction of infection by chilled and frozen meat imported from infected countries.

The latest record of foot-and-mouth disease in Great Britain appeared in the *Veterinary Record*.[25] The *Record* reported that 12,744 animals were slaughtered because of foot-and-mouth disease in the United Kingdom during the year ended June 19, 1947, for which indemnity payments totaled over $1,300,000. One might assume, therefore, that the disease has been present in Great Britain fairly consistently from the time it was first introduced in 1839 to the present day.

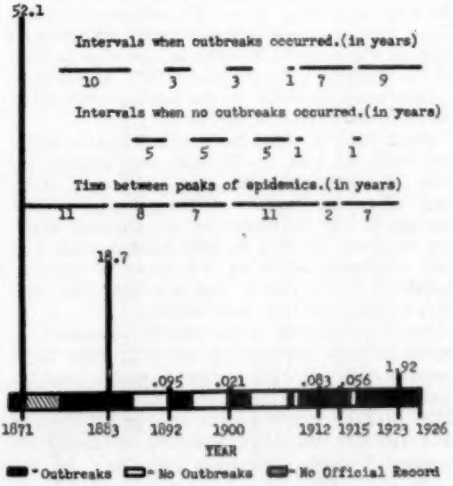
According to Cabot,[23] the present chief veterinary officer of Great Britain, the stamping-out policy has been in force for a long time, and foot-and-mouth disease has not been enzoötic in Great Britain since the 1880's. He mentions that on the Continent the disease is normally dealt with by isolation and the application of sanitary regulations. He states, therefore, that "the study of the disease in Great Britain is the study of the invasions of that country, whereas, on the continent of Europe it is a study of the prevalence of an enzoötic disease."

Introduction of the disease into Great Britain, according to Cabot, may be considered under three headings: the introduction of infection by untraced means, the importation of diseased animals, and the introduction of infection by chilled and frozen meat imported from infected countries. Concerning untraced means of introduction, he emphasizes the possibility of birds carrying the infection from the European mainland. Since the importation of diseased animals is prohibited by law, this method of introduction has not played too great a part in recent years, except by means of cattle introduced from Ireland. The 1942 outbreak was apparently caused by this means. Cabot also stresses the possibility of introduction of infection by chilled and frozen meat imported from infected countries. Raw swill was apparently involved in initial outbreaks of the disease in pigs.

It is interesting to note that, in most countries where the disease occurs periodically, the explanation of new outbreaks is mainly by the introduction of infection from an outside source. Greenwood[4] makes note of this in the following paragraph:

> The second general observation I have to make is that every official department whose reports I have examined is quite satisfied that the disease has been imported from the jurisdiction of some other government. It is not necessary to cite chapter and verse for this statement so far as our own country (Great Britain) is concerned. In Holland, two successive commissions, the private commission of 1911 and the royal commission of 1919, satisfied themselves that if only diseased animals or carriers (animate or inanimate) could be stopped at the frontiers there would be an end of epidemic foot-and-mouth disease. While as to Germany, this summary of the report for 1907 (Jahresbericht über die Verbreitung von Tiereseuchen, 22 year, 1907) is quite typical. A bad year, worst in Marienwerder—infection frequently introduced from Russia especially in Allenstein—outbreak in Neidenburg attributed to Russian-Polish potato diggers who the day after crossing the frontier passed the night in the first farm to be infected—outbreak near Dutch frontier attributed to smuggling of cattle—outbreak in Bavaria attributed to introduction of cattle from Switzerland.

We are now faced with two possibilities concerning the disease in Great Britain: (1) Cabot's point of view that the disease is not enzoötic but constantly being introduced, and (2) a consideration that the disease is enzoötic and undergoes a cyclic manifestation. Since data have not been obtained for the entire period during which outbreaks of the disease have occurred, this discussion will be confined to the period 1870 to 1926.



Graph 2C—Cyclic behavior of foot-and-mouth disease in Great Britain for fifty-seven years (1870-1926), showing peaks of epizoötics (outbreaks—in thousands).

One point in favor of Cabot's view is that Great Britain has not had a serious epizoötic since 1883. Based on the number of outbreaks for each year, it may or may not be entirely accurate as previously mentioned. However, comparing the number of outbreaks in Great Britain with those in the Netherlands, in 1924, the Netherlands had a total of 88,930 outbreaks, while in the same year Great Britain had 1,440. The previous year (1923) the disease was the most prevalent since 1883, but still only minor compared with the Netherlands where 9,200 outbreaks occurred.

We must consider the possibility of cyclic variations in prevalence of the disease in Great Britain. From 1870 to 1926, we find that the disease was absent only seventeen of fifty-seven years. This may be somewhat inaccurate since there were no official records for 1872 to 1876. Graph 2C shows the variations in prevalence of the disease for the entire period. It will be noted that, starting with 1877, the disease occurred with striking regularity, a fact which tends to disprove the introduction theory, if the data are accurate (Chart 2).

Starting with 1877, the disease was present for ten years, and the next twenty-one years present an interesting picture. During 1887 to 1907, inclusive, there was a five-year period of freedom from the disease, three years of outbreaks of the disease, another five-year period of freedom, then three years of outbreaks, and finally another five-year period of freedom. This seems indicative of cyclic manifestation. One could hardly consider birds as introducing the disease with such regularity. Also, we find that when other countries were having severe epizoötics, Great Britain was free of the disease. Thus, in the Netherlands in 1897, there was a severe epizoötic with 42,547 outbreaks, while Great Britain is recorded as free of the disease. Similarly, in 1907, 17,915 outbreaks were recorded in the Netherlands, with no outbreaks in Great Britain.

From 1908 to 1926, the 5 and 3 regularity is not observed and the disease was present almost continuously with only two years (1909 and 1917) of freedom. Thus, there was a change in the incidence of the disease, starting in 1908. It was in 1908 that foreign hay was suspected as being the cause of the outbreaks. As a result, the Foreign Hay and Straw Order of 1908 was issued.

Some indication of increasing incidence is noted in this last period, since in 1923 there were 1,929 outbreaks, the greatest number since the epizoötic in 1883. The records from 1926 to date would be interesting to observe, and are essential for a complete picture of the disease incidence in Great Britain.

In summarizing, we might say that there are some indications of cyclic variations in the prevalence of foot-and-mouth disease during 1877 to 1926. During that period, it seems fairly evident that the disease was enzoötic. Since 1926, however, the incidence of the disease may have changed so that Cabot's view could be correct for the present-day occurrence of the disease in Great Britain.

Netherlands

Records of the early history of foot-and-mouth disease in Holland are not available and, therefore, this discussion will deal primarily with the period from 1880 to 1926. In Holland, there was little foot-and-mouth disease between 1880 and 1892; 1897 and 1911 were bad years with, respectively, more than 40,000 and 70,000 affected farms, with intervals of almost complete quiescence. From 1886 through 1891, only four farms, two in 1886 and two in 1890, were infected, and from 1902 through 1906 there was another almost complete remission.

Holland experienced eight epizoötics on a grand scale in 1894, 1897, 1911, 1919, 1920, 1924, 1925, and 1926. From 1892, no year was entirely free of the disease except 1905; but in 1893, 1895, 1902 to 1906, 1908 to 1910, 1912 to 1914, and 1916 to 1917, it did not cause serious loss.

In 1910, only four outbreaks of foot-and-mouth disease were known to have occurred in Holland. The first cases of the 1911 epizoötic occurred in provinces with German frontiers, the first, on Feb. 1, 1911, in Limburg. The stock owner there was said to have had contact with miners from infected areas in Germany, but at that time no cases were known in any of the German parishes actually on the frontier. Rapidly, other provinces were involved and the epizoötic became serious.

TABLE 3—Outbreaks of Foot-and-Mouth Disease in the Netherlands (1880-1926)

1880—251	1896—1,289	1912—305
1881—675	1897—42,547	1913—54
1882—3	1898—1,350	1914—208
1883—634	1899—9,780	1915—1,520
1884—32	1900—4,331	1916—124
1885—97	1901—610	1917—15
1886—2	1902—35	1918—3,537
1887—*	1903—1	1919—31,484
1888—*	1904—2	1920—53,280
1889—*	1905—*	1921—684
1890—2	1906—9	1922—325
1891—*	1907—17,915	1923—9,200
1892—1931	1908—185	1924—88,930
1893—414	1909—53	1925—30,936
1894—15,489	1910—4	1926—62,565
1895—228	1911—71,325	

*No outbreaks occurred.

The country was divided into 11 provinces—Zeeland, Friesland, North Holland, South Holland, Utrecht, Limburg, North Brabant, Gelderland, Overyssel, Groningen, and Drenthe. Four of the western provinces, North Holland, South Holland, Friesland, and Utrecht, had no fron-

TABLE 3A—Outbreaks of Foot-and-Mouth Disease According to Month for the Years 1911-1924, in the Netherlands

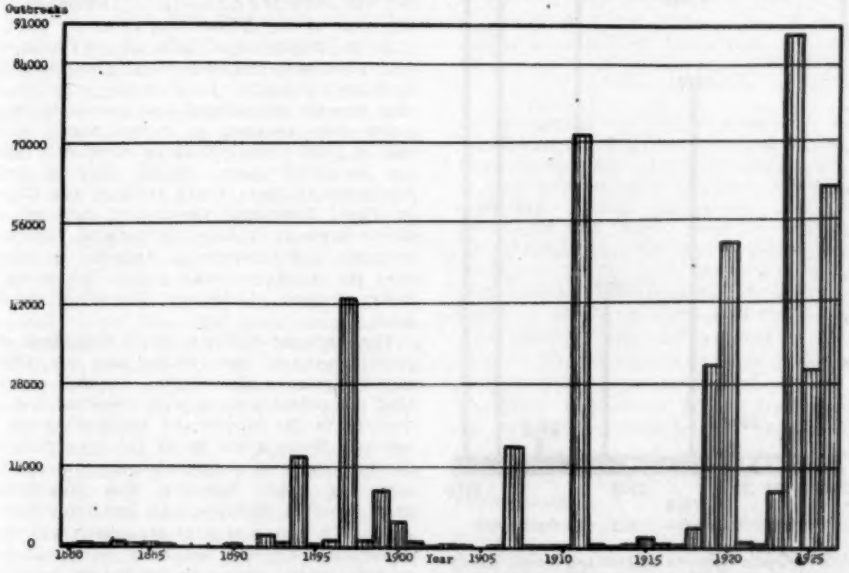
Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1911	....	44	142	328	4694	19202	12177	15588	13668	4391	1089	302	71325
1912	75	90	62	31	18	12	2	3	1	....	5	6	305
1913	16	13	11	6	3	1	....	....	1	1	2	....	54
1914	1	5	2	1	....	....	....	....	....	5	63	131	208
1915	110	88	46	65	123	186	129	68	88	237	233	147	1520
1916	55	46	21	2	....	....	....	....	....	....	....	....	124
1917	1	....	3	9	1	1	....	....	....	....	....	....	15
1918	....	....	1	....	....	....	8	9	106	185	969	2259	3537
1919	1080	1238	785	662	3496	6516	5276	4036	5000	2489	551	355	31484
1920	238	1063	3371	5677	11731	9161	9852	6410	3054	1096	951	676	53280
1921	247	126	85	78	40	10	18	29	12	12	13	14	684
1922	12	9	10	7	5	5	....	1	1	37	187	51	325
1923	24	22	10	37	146	251	476	1176	2555	2658	1298	547	9200
1924	211	369	2397	4746	9419	14914	22581	20692	7757	3420	1224	1200	88930
Total	2070	3113	6946	11649	29676	50259	50519	48012	31943	14531	6585	5688	260991

Greenwood[4] obtained the above data from the annual reports of the veterinary division. His records have a further breakdown of the data, so that the monthly outbreaks in each province are shown. Greenwood states that the data are not accurate, but of some value. He mentions that the unit is a herd in which a case of the disease has been reported and that there is no distinction between an outbreak affecting a herd of hundreds of cattle and a case in a villager's pig.

It is believed that the data are of value in giving some indication as to seasonal variations of the disease.

tiers upon a foreign state. Friesland is a peninsula north of the Zuider Zee. Limburg and North Brabant border on both Germany and Belgium, and Groningen, Drenthe, Overyssel and Gelderland, have extensive frontiers with Germany.

In addition to those in 1911, three other great epizoötics occurred in 1918 to 1919, 1920, and 1924 to 1926. Also in 1915 and 1923, the prevalence was too great to be reported as merely sporadic. In 1912 to 1914, 1916 to 1917, and the first eight month of 1918, 1921, and 1922, foot-and-mouth disease was merely sporadic. But in no single year was the country free from the disease. The longest period of practical freedom was from June, 1913, to October, 1914. In that period, 14 cases were reported, 3 each in North and South Holland; 2 each in North Brabant, Friesland, and Limburg; 1 each in Zeeland and Utrecht. This period was ended, not by a great epizoötic but by the moderate prevalence beginning in November, 1914, and ending in March, 1916.

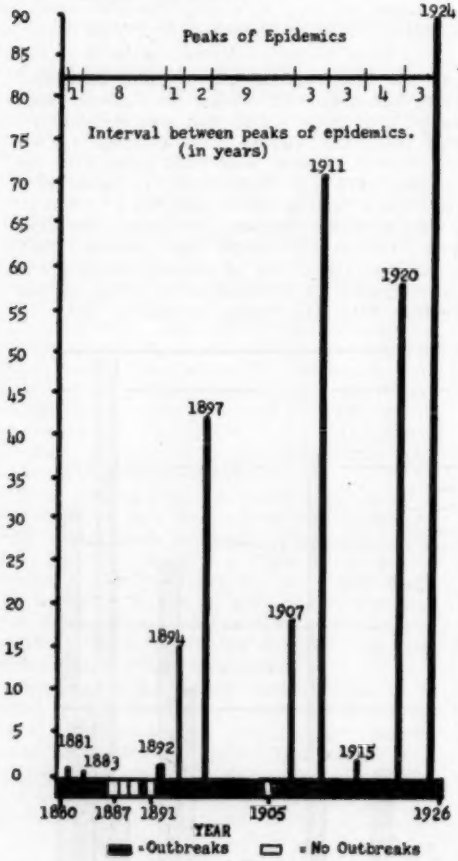


Graph 3—Outbreaks of foot-and-mouth disease in the Netherlands (1880-1926).

The next phase began in the late summer of 1918 with an outbreak which was practically a continuous phenomenon running to May, 1921. The first maximum was in December, 1918, the second in June, 1919, and the third in May, 1920. The first phase was the mildest, the third phase was by far the most severe. From May, 1921, to May, 1923, there was an intermission, then a short epizoötic with a maximum in October, followed by the greatest epizoötic recorded for the period, attaining a maximum in July, 1924.

From the end of the 1911 epizoötic to the beginning of the 1918-1919 outbreak, the policy of isolation and slaughter was regularly carried out.

The clinical type of the disease in 1918 was described as mild everywhere. The descriptions of 1919 concurred in reporting a change of type. In one area, it was reported that in the pasture season the type changed from mild to extremely severe, especially in July when 215 adult cattle died. One inspector noted that heifers escaped most lightly and that pigs and sheep were not much affected. Some districts next to heavily infected areas sometimes escaped altogether or with a few scattered cases. In some areas, individual animals and whole herds were often attacked twice or even three times. In 1920, Groningen reported heavy mortality of young calves and of pigs, and the cattle after recovery were often infertile and afflicted with respiratory trouble. Other areas also reported heavy mortality with complete failure of immunization through previous natural attack, and serious aftereffects in recovered animals, such as respiratory involvement, infertility, mastitis, and abortion. In 1921, the type was described as mild and mainly affecting young animals.



Graph 3A—Cyclic behavior of foot-and-mouth disease in the Netherlands for forty-seven years (1880-1926).

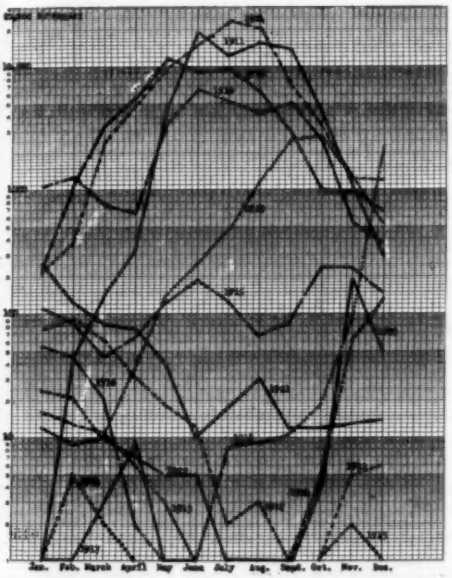
The last seven months of 1921, and the first nine of 1922, were periods of quiescence. But in November, 1922, all provinces except Drenthe were again reporting cases. In 1922 and 1923, South and North Holland and Utrecht were the storm centers. South Holland produced, in the last three months of 1922, 147 of the total 325 outbreaks of the whole year. In 1923, these two provinces and Utrecht were responsible for 90.9 per cent of the outbreaks. North Holland's maximum of 807 was in October, South Holland's maximum, 1,537, was in September, and Utrecht had a maximum of 642 in October. Every province except Groningen was reporting outbreaks in December, 1923. The type of the disease was generally mild.

At the beginning of 1924, all provinces were returning cases but only North and South Holland more than 30. Later in the year, the disease became widespread and proved to be the worst year recorded up to that time. At the end of 1924, three provinces were still reporting over 200 cases. South Holland had a maximum in May; North Holland and Utrecht in June; Friesland, Groningen, Zeeland, and North Brabant in July; Gelderland, Overyssel, Drenthe, and Limburg in August. In December, the incidence was again increasing in North Brabant, Gelderland, Friesland, and Zeeland.

The various districts noted important clinical features of the disease, and one district noted numerous aftereffects. Another reported that the primary sores were observed less frequently in the mouth and more often on the udders. Some areas found the type mild and deaths mostly of young animals, but mastitis occurring after recovery was troublesome. Most reported the type mild but infectious.

In 1918, the policy of slaughter was abandoned, and in the following years, at least to 1926, there was a succession of epizoötics.

The epizoötiologic tendency was toward mildness since the second phase of the 1918 to 1919 outbreaks, but the infectivity of the 1923 to 1924 outbreak was the highest recorded and there was a greater frequency of second and third attacks.

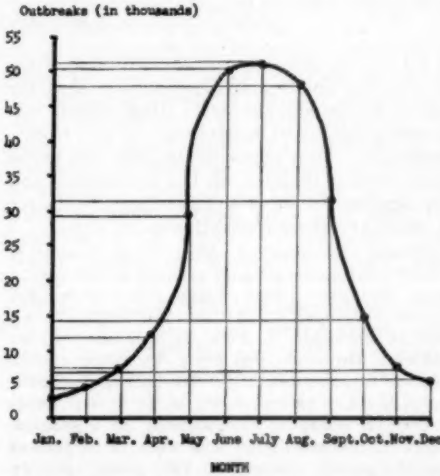


Graph 3B—Outbreaks of foot-and-mouth disease according to month for 1911-1924 in the Netherlands. (Data from table 3A.)

The phase occurrence of the disease in the Netherlands is repreesnted in graph 3A. The maximum in a series of years is called the peak of an epizoötic and varies considerably. From 1880 to 1926, six main peaks occurred, those of 1894, 1897, 1907, 1911, 1920, and 1924. The 1894 peak might be said to be the first phase, and, following a two-year interval, the second phase came in 1897. Next, after an interval of nine years, another first phase appeared in 1907, slightly greater than the 1894 phase; and, after an interval of three years, the second phase came as the 1911 epizoötic, which was much more extensive than that of 1897. Finally, during this period, the first phase occurred in 1920 after an interval of seven years, and, after an interval of three years came the 1924 outbreak—the most widespread on record.

The occurrence of the disease during this period might be divided into phases, having two phases two or three years apart as a series, and each series of phases coming at intervals of seven to nine years. In this case, there also tends to be an increase in each series of phases, so that the outbreaks of the disease in 1920 to 1929 were far more extensive than the outbreaks in 1894 to 1897. Thus, we have a fairly good indication of cyclic manifestation in the Netherlands. Graph 3A represents annual maximums for a series of years, and should not be confused with the monthly maximums as given previously.

An indication of monthly or seasonal variations in prevalence is given in table 3A with graphic representation in graph 3B and 3C. Graph 3B shows the monthly fluctuations for each year from 1911 to 1924, and graph 3C represents the total outbreaks for each month



Graph 3C—Outbreaks of foot-and-mouth disease according to month in the Netherlands. Total outbreaks for each month for fourteen years (1911-1924). (Data from table 3A.)

for the period. It will be noted that most of the extensive outbreaks occurred in the summer months. Also, when the disease was more or less sporadic with less than 100 outbreaks occurring in any one month, the seasonal prevalence was highly variable. By totaling the outbreaks for each month over a period of years, the end result simulates a normal curve with maximum prevalence in July, and a range of maximum from May to September.

In summarizing the account of the disease in the Netherlands, one could hardly disregard the possibility of cyclic manifestation regardless of the inaccuracy of the data. From 1880 to 1926 there are definite indications of cyclic variations in prevalence of foot-and-mouth disease in the Netherlands.

(Dr. Menges will discuss the cyclic variations in the prevalence of foot-and-mouth disease in Mexico in the December issue, which will conclude the paper. The references, 1 to 35, will be published at that time.)

SURGERY & OBSTETRICS
AND PROBLEMS OF BREEDING

Methadon, a New Analgesic

Study in Combination with Thiobarbiturate Anesthesia in Dogs

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Detroit, Michigan

METHADON* (6-dimethylamino-4, 4-diphenyl-heptanone-3 hydrochloride) is a recently developed analgetic drug which has shown promise of usefulness in veterinary medicine. This paper deals with the acute and chronic toxicity of the compound and its application as a preanesthetic sedative in thiobarbiturate anesthesia in dogs.

Review of Literature.—Scott *et al.*[1-5] reported a brief pharmacologic and toxicity study in rats, dogs, and man. They found little or no tolerance developed to the marked analgetic action of methadon in dogs. In this species, the analgetic threshold was 1 mg./kg. when administered intraperitoneally. In human patients, doses of 1.5 to 2.0 mg. every three to four hours controlled coughing successfully. As a preanesthetic agent, methadon was used in 58 human surgery cases. These workers have also reported on its use to control postoperative and renal colic pains.

Ishmael and Stacy[6] reported on its use in human patients. A dose of 2.5 mg. orally, every four to eight hours, produced satisfactory analgesia in the control of bone and nerve root pain.

Materials and Methods.—Methadon is a synthetic, white, odorless, crystalline compound, unrelated to morphine, whose solubility in water is greater than 10 Gm./100 cc. A 1 per cent aqueous solution has a slightly acidic reaction with a pH 5.8. The compound and its solutions are stable under ordinary conditions. Dogs used in this study were adult males of mixed breeds free of clinical disease. Hematologic and biochemical studies of blood and urine were made prior to use and at bi-weekly intervals while on test.

Acute Toxicity.—Acute oral, subcutaneous, and intravenous toxicity studies were made in a total of 70 dogs (table 1). The compound was found to be active both orally and parenterally. Its toxicity by the oral, subcutaneous, and intravenous routes is approximately in the ratio of 3:2:1, respectively. Dogs receiving a surgical anesthetic dose (s.a.d.) were prostrate but not completely relaxed, and showed profuse salivation and a distinct relaxation and protrusion of the tongue. Pain was completely abolished at these dose levels. The respiration, pulse, and body temperature were considerably depressed.

TABLE 1—Summary of Acute Toxicity Studies of Methadon in Dogs

Administration	Animals (No.)	s.a.d.[1] (Mg./kg.)	m.t.d.[2] (Mg./kg.)	$l.d._{50}$[3] (Mg./kg.)
Oral	21	35.0	50.0	75.0
Subcutaneous ..	22	15.0	25.0	50.0
Intravenous ...	27	10.0	17.5	27.0

[1]Surgical anesthetic dose. [2]Maximum tolerated dose, survival of 100 per cent animals. [3]Lethal dose, 50, a death of 50 per cent animals.

The maximum tolerated dose (m.t.d.) caused occasional vomiting, diarrhea, and clonic convulsions, together with severe respiratory depression. Deaths on the $l.d._{50}$ dose (survival of 50% of animals) were due to respiratory failure in a spastic, convulsive state.

Chronic Tolerance.—To study the development of tolerance or cumulative effect, methadon was administered orally and subcutaneously for six months to a total of 29 dogs. Subcutaneous injections of methadon were in doses of 0.5 to 7.5 mg./kg. twice daily. Perorally, dogs were maintained on 1.25 to 10.0 mg./kg. body weight twice daily.

Subcutaneously, the well-tolerated dose for a period of six months was 0.5 mg./kg. and orally, 1.25 mg. twice daily. Hypnosis

*Methadon—Generic term approved by the Council on Pharmacy and Chemistry, A. M. A., August 23, 1947.

From Research Laboratories, Parke, Davis and Co., Detroit, Mich.

was not noted at these dose levels although there was a slight depression of the pain sensation. Doubling of the dosage occasionally produced vomiting and slight salivation. Dogs receiving the higher dose levels showed frequent vomiting, salivation, incoördination, and muscular weakness. Anorexia and diarrhea were occasionally observed. The respiration, pulse, and body temperature in animals were irregularly affected, with tendency to initial respiratory stimulation followed by depression in respiratory and pulse rates and lowering of temperature.

There was no disturbance in hematopoiesis, total blood nonprotein nitrogen, or bromsulphalein liver function values. The urine remained free of albumen and sugar. There was no significant change in body weight.

Combined Use of Methadon and Thiobarbiturate.—The chief clinical indication for methadon in veterinary surgery is in combination with one of the common barbiturates. Barbiturates, as a group, are chiefly hypnotic drugs and do not abolish the pain sensation as completely as may be desired until maximal tolerated doses are administered. Frequently, morphine is injected subcutaneously prior to administration of a barbiturate to lengthen the period of surgical anesthesia. This procedure permits a reduction in the dose of the barbiturate. An extensive study was undertaken to determine the usefulness of methadon as a substitute for morphine in thiobarbiturate anesthesia.

Dogs were administered surital sodium* (sodium-5-allyl-5-(1-methylbutyl)-2-thiobarbituric acid)[7-10] to determine the durations of analgesia, anesthesia, and recovery periods including the effect on pulse, respiration, and temperature. This same series of dogs was then used to determine the combined effect of the thiobarbiturate with methadon. The methadon (0.5 and 1.0 mg./kg.) was injected subcutaneously in a 1.0 per cent aqueous solution one-half hour prior to the intravenous injection of the thiobarbiturate. The mean duration of hypnosis, analgesia, and the recovery period are summarized in table 2.

One milligram per kilogram of methadon approximately doubled the duration of prostration and analgesia on any given dose of surital sodium. Furthermore, with subanesthetic doses of surital, the addition of methadon resulted in complete loss of pain sensation. Doses of 15 mg./kg. of surital alone did not abolish pain but, with the addition of 1.0 mg./kg. of methadon, pain was abolished for an average of nine minutes.

The average normal preinjection pulse, respiratory rate, and temperature were found to be 117, 23, and 101.3 F., respectively, for all animals (table 3). One-half hour following a 1.0 mg./kg. subcutaneous injection of methadon, the pulse rate was depressed to 99 and the respiratory rate stimulated to 55. There was no significant change in temperature.

When methadon was followed in thirty minutes by the thiobarbiturate intrave-

*Surital Sodium is a Parke, Davis and Co. trademark and is not an item of commerce at the present time.

TABLE 2—Mean Duration of Hypnosis, Analgesia, and Recovery Period of Dogs Receiving Methadon Subcutaneously as Preanesthetic Sedative in Intravenous Thiobarbiturate Anesthesia

	Controls[1] (surital sodium alone)			Methadon pretreated dogs (subcutaneous injections)					
				0.5 mg./kg.[2]			1.0 mg./kg.[3]		
Surital sodium Mg./kg. i.v.	Average duration flaccid prostration (hr. and min.)	Average duration analgesia (min.)	Average recovery time (hr. and min.)	Average duration flaccid prostration (hr. and min.)	Average duration analgesia (min.)	Average recovery time (hr. and min.)	Average duration flaccid prostration (hr. and min.)	Average duration analgesia (min.)	Average recovery time (hr. and min.)
7.5	...	..	...	...	..	...	0:10	0	3:17
10.0	...	..	...	...	..	...	0:24	7	2:49
12.5	...	..	...	...	..	...	0:32	8	3:30
15.0	0:23	0	4:17	0:47	0	3:33	1:07	9	4:38
17.5	0:30	13	4:54	0:40	15	5:24	1:12	27	6:10
20.0	0:33	14	3:00	0:56	19	3:04	1:06	30	4:22
22.5	0:38	18	3:25	1:18	24	4:17	1:23	38	4:30
25.0	1:07	33	4:32	1:28	34	6:10	2:00	45	6:10

[1]Average of 34 trials per dose level. [2]Average of 13 trials per dose level. [3]Average of 12 trials per dose level.

nously (7.5 to 25.0 mg./kg.), the pulse rate was increased but slightly while the respiratory rate and temperature were considerably depressed (table 4). For control animals receiving the thiobarbiturate alone, the pulse rate and temperature depression was not as great but the respiratory depression was more severe.

TABLE 3—Pulse, Respiration, and Temperature Prior to and One-Half Hour Following Subcutaneous Injection of Methadon

	Normal values	After injection of methadon (½ hr.)	
		0.5 mg./kg.	1.0 mg./kg.
	170 trials (ave.)	67 trials (ave.)	92 trials (ave.)
Pulse	117	102	99
Resp.	23	46	55
Temp.	101.3	101.5	101.0

No death occurred in any dog receiving surital sodium in doses up to 22.5 mg./kg. At 25.0 mg./kg., in a total of 56 injections of the thiobarbiturate, 9 deaths occurred. The number of deaths increased with the addition of methadon. On doses below 22.5 mg./kg of surital sodium, an occasional transient respiratory depression was encountered which was readily counteracted by brief thoracic massage.

DISCUSSION

Methadon, a new synthetic analgesic substance, unrelated to morphine, is relatively nontoxic. In dogs, it produced a state of surgical anesthesia and analgesia in a maximal tolerated dose range. Surital sodium, a water soluble thiobarbiturate, has a high hypnotic effect, while the analgetic effect is obtained at near maximal tolerated dose levels. When methadon was used as a preanesthetic sedative in combination with surital anesthesia in dogs, the amount of each substance was reduced, methadon to 1/15 and surital to about ½ of their individual surgical anesthetic dose levels, providing a wide margin of safety. Methadon, 1.0 mg./kg., administered subcutaneously one-half hour prior to surital sodium (10 to 15 mg./kg.) intravenously, produced deep anesthesia and analgesia sufficient for operative procedures. The anesthesia could be prolonged by additional administration of surital (¼ to ⅓ of the previous dosage) if required. In general, methadon increased the effectiveness of the thiobarbiturate anesthesia and prolonged its duration. Methadon by itself, in clinical doses, stimulated the respiratory rate and depressed slightly the pulse rate, without effect on body temperature. The surital sodium alone is a depressant of cardiac, respiratory, and thermal centers.[10] The two substances together tend to normalize the respiratory function, but a combined use is contraindicated in animals with coexistant pulmonary complications.

Methadon, administered orally in doses of 1.25 mg./kg. twice daily, has marked sedative and a moderate analgesic action with no toxic reactions. The comparative subcutaneous dosage is about 0.5 mg./kg. administered twice daily. Methadon alone, or combined in treatment with surital sodium, showed no tendency to development of addiction, or cumulative toxic effects.

The indications for methadon alone, or with a short acting thiobarbiturate, are many and varied.[10] The present study indicates that methadon can effectively be substituted for morphine as a preanesthetic sedative.

TABLE 4—Pulse, Respiration, and Temperature Following Surital Sodium Injections in Normal and Methadon Pretreated Dogs

Surital Mg./kg. i.v.	Controls[1] Following surital sodium administration			Methadon pretreated dogs Followed by intravenous injections of surital sodium					
				0.5 mg./kg.[2]			1.0 mg./kg.[3]		
	P*	R*	T*	P	R	T	P	R	T
15.0	116	11	100.2	117	12	99.9	95	11	98.3
17.5	111	10	100.2	122	11	100.0	117	9	98.0
20.0	102	13	99.6	91	12	97.6	93	14	96.9
22.5	114	12	99.9	104	19	98.9	116	31	98.0
25.0	104	10	99.2	100	22	98.2	96	..	93.3
Average all dogs	109	11	99.8	107	15	98.9	103	16	96.9

*P=pulse; R=respiration rate; T=temperature.

[1]Average of 34 trials per dose level. [2]Average of 13 trials per dose level. [3]Average of 8 trials per dose level.

SUMMARY

1) Methadon, a new synthetic analgesic, unrelated to morphine, was studied in dogs for acute and chronic toxicity and anesthetic-analgesic effectiveness when used singly or when combined with surital sodium.

2) The surgical anesthetic dose of methadon in dogs by the oral, subcutaneous, and intravenous routes was found to be 35, 15, and 10 mg./kg., respectively, and the $l.d._{50}$ (50% death of animals) was 75, 50, and 27 mg./kg. For surital sodium alone intravenously, the surgical anesthetic dose was 17.5 to 22.5 mg./kg., and the $l.d._{50}$ was 27.5 mg./kg.

3) Methadon, in a dose of 1.0 mg./kg. given subcutaneously to dogs one-half hour prior to injection intravenously of surital sodium (10-15 mg./kg.), was found to reduce the required dosage of a thiobarbiturate for surgical anesthesia by approximately half.

4) The tolerated dosages by the oral and subcutaneous routes for a six-month period were 1.25 and 0.5 mg./kg. respectively.

5) A satisfactory surgical anesthesia in dogs was readily induced by a combined administration of methadon and a thiobarbiturate.

6) Prolonged administration of methadon, orally or subcutaneously in dogs, produced no cumulative toxic effect or tolerance.

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A Manual Method for the Diagnosis of Pregnancy in Cattle

The gloved hand is inserted into the rectum of the cow and turned with the palm downward over the coiled horns of the uterus. The whole uterus is then picked up and held in the hollow of the hand. With the uterus in that position, the middle finger should lie directly over the external bifurcation. This finger is inserted between the horns and pushed downward and under the bifurcation until the tip of the finger can be hooked under the web of tissue connecting the two horns. By lifting upward and backward, the horns can then be uncoiled until each may be palpated between the thumb and the first two fingers throughout its entire length. Palpitation is made for the presence of the amnionic vesicle which will appear as a small, turgid, slightly-oblong, balloon-like structure. As the thumb and forefinger move backward along the horn, palpating fairly deeply, the vesicle will slip away from between the thumb and fingers as an attempt is made to palpate it. The feel of this "slipping" action is highly characteristic.

Normally, the amnionic vesicle should be sought in the uterine horn on the same side as the ovary in which the corpus luteum is found. A few exceptions to this have been reported but postmortem examinations to verify them have not been possible. In the case of twin pregnancies, two vesicles should be palpable, and the examiner may well be on the alert for the presence of two vesicles at all times.

Obviously, a positive diagnosis is more sure than a negative diagnosis; no structure other than the amnionic vesicle is likely to be present in the uterus which will give the characteristic feel. A negative diagnosis can be false because of lack of persistency on the part of the operator or lack of coöperation on the part of the

From the departments of Veterinary Science and Genetics, University of Wisconsin, published with the approval of the director of the Wisconsin Agricultural Experiment Station.

Dr. Wisnicky is now a practicing veterinarian at Fond du Lac, Wis.

cow with the net result that a careful examination is not made of the full length of each uterine horn.

The embryo is enclosed in the fluid-filled amnionic vesicle, which in turn is enclosed in the fluid-filled chorionic vesicle. The latter contains its fluid rather loosely, that is, without the enclosing membranes being taut. The inner vesicle, however, is extremely turgid up to six or seven weeks of gestation, but following that time it rapidly loses its turgidity until it will no longer give the characteristic slippery feel. It is for this reason that palpation for the amnionic vesicle is most effective from thirty-five to forty-nine days of gestation. Diagnosis may be made a few days earlier than this, providing the operator is particularly careful and is sensitive to the feel of the very small vesicle which will be present at such an early stage.

The amnionic vesicle grows and elongates rapidly between the thirty-fifth and forty-ninth days. The operator can, in fact, by working out a method of measuring with his fingers or through his sense of size, develop a set of age-length standards whereby he can estimate the age of the fetus with an error of rarely more than a day or so. This is particularly of value in determining the normality of a pregnancy and also in deciding whether a pregnancy has resulted from breeding at one or the other of two successive heat periods.—*Walter Wisnicky, B.S., D.V.M., Fond du Lac, Wis., and L. E. Casida, Ph.D., Departments of Veterinary Science and Genetics, University of Wisconsin, Madison, Wis.*

Tracheotomy*

The author attributes the complications of tracheotomy to the presence of a foreign body in the wound and in the lumen of the trachea. To eliminate the tracheotomy tube, a method of securing a persistent tracheal fistula was developed and tested in 25 dogs, 8 experimental horses, and 5 diseased horses. A rectangular or oval piece of skin and sternothyrohyoid muscle was removed in addition to the usual opening in the trachea. The tracheal mucosa was then sutured to the skin so that the tracheal rings and the muscles were covered. The sutures were removed in seven to fifteen days. The animal was fed and watered from the floor for two weeks. The resulting aperture was entirely satisfactory for respiration. Much less care was required than when a tube was used, because of reduced suppuration and mucus secretion. The fistula was kept clean by swabbing the surrounding skin every two or three days.

The fistula was closed with sutures after freshening the edges with a scalpel. The defect in the trachea was repaired more rapidly than in cases which had been fitted with a tube.—*R. E. Habel, D.V.M., Columbus, Ohio.*

*Voskrecenski, V. K.: Tracheotomy sans Cannula. Veterinariya, 25, (June, 1948): 37-39.

Tail Docking and Ear Trimming

The only tails that should be cut short are those of the Doberman, Schnauser, Boxer, and Schipperke. With the exception of the Schipperke, one bone should be left. In the terrier breeds, the tail should be long enough to reach the same height as the head when standing at attention; never remove more than one-third, and if the tail is short and stubby, leave even more. The Cocker Spaniel is supposed to have enough tail to afford a hand-hold; to achieve this, only one half should be removed. Failure to perform this type of surgery properly has brought embarrassment and disrepute to many veterinarians.

When called upon to trim ears, the veterinarian should be sufficiently informed to advise owners as to the correct style for the breed presented.—*Dr. F. R. Booth, M.S.C. Vet., Summer, 1948.*

Relation of Folic Acid to Estrogen Activity

There is "general physiologic significance" in the fact that a close link has been established between folic acid deficiency and the failure of chicks and young monkeys to respond to estrogen administration *(Nutr. Rev., Sept., 1948)*. Controlled experiments with both species showed that negative responses of folic acid-deficient chicks and monkeys to estrogen injections were specifically restored by administering synthetic folic acid. That the phenomenon may have application to other species is suggested by the existence of this relation in the two widely diverse species. The view is advanced that "It

may not be too early to generalize and say that all rapid proliferation of cells is dependent upon this vitamin, which appears from microbiologic evidence to be specifically involved in the synthesis of thymine and of purine bases, substances necessary for the formation of the nuclear material of all cells."

Breeding Problems in Mares

The only regularity about the estrous cycle of a mare is its irregularity. The normal varies within such wide limits that one should think twice before declaring the cycle to be abnormal. Lack of attention to teasing is the cause of much temporary sterility, and one of the most common causes of infertility is aspiration of air into the vagina, due either to poor conformation or to injuries sustained at parturition. In cases of retained placenta, no ill-effects should follow careful aseptic removal. Pituitrin is recommended to correct the subinvolution that often follows, and the mare should not be bred until the second period in order to give the uterus time to return to normal.—*A. M. Bain, M.R.C.V.S., Australian Vet. J., June, 1948.*

Suture of Operative Wounds of the Withers*

Fifteen cases of supraspinous bursitis, necrosis of the ligamentum nuchae, and necrosis of the dorsoscapular ligament were treated by Merillat's radical operation. The wound margins were widely retracted to permit visual control during the removal of necrotic tissue. When necessary, a contra-aperture was made 5 to 7 cm. in front of the cranial angle of the scapula. A gauze drain was placed in the wound, with the end protruding from the contra-aperture. The primary incision was closed with tension sutures of gauze bandage inserted 3 cm. from the wound margins at 5 to 6 cm. intervals. Closure was completed with apposition sutures. The wound was covered with cotton and collodion. The drain was changed in three to four days, and as often as necessary until granulation tissue appeared. Tension sutures were removed in six to seven days, and apposition sutures in eight to ten days. The animals were tied short before a high manger to prevent unnecessary movement of the neck.

In 11 of the 15 cases, the primary operative wounds healed by first intention. In all cases, gaping of the wound and deformation of the withers was prevented. Healing time was thirty-two to fifty-six days, with the exception of one case which required ninety-seven days.—*R. E. Habel, D.V.M., Columbus, Ohio.*

*Lieut. Col. M. D. Kharchenko: The Suture of Wounds of the Withers after Merillat's Operation. Veterinariya, #5, (March, 1948): 21-24.

While hormone treatment will bring virgin heifers into milk, it also commonly destroys their breeding ability.

Hemostasis in Croup and Thigh Wounds*

Gunshot wounds involving the deep vessels of the croup and thigh were often fatal to Soviet military horses in the last war. In 30 cases observed by the author, secondary hemorrhage, occurring as a result of necrosis at variable intervals after injury, was more common than primary hemorrhage. The locations of the large vessels of the gluteal region were projected on the surface as follows:

Cranial gluteal—draw a line from the tuber sacrale to the summit of the great trochanter. The vessels emerge from the sacrosciatic ligament at a point between the dorsal and middle thirds of the line.

Caudal gluteal—draw a line from the tuber sacrale to the tuber ischii. A transverse plane through the cranial part of the trochanter major intersects the line at the point of emergence of the vessels.

Iliolumbar—curves around the ventrocaudal border of the wing of the ilium and runs craniodorsad in the middle gluteus.

Temporary hemostasis of the iliolumbar and gluteal arteries was obtained by an assistant compressing the internal iliac artery per rectum. The surgeon was then able to remove the blood clots from the wound, locate the bleeding vessels, and apply a ligature. In hemorrhage from the femoral, deep femoral, or caudal femoral arteries, temporary hemostasis was effected by pressure on the external iliac artery per rectum.—*R. E. Habel, D.V.M., Columbus, Ohio.*

*Lieut. Col. M. V. Plakhotin: Some Peculiarities of Hermostasis of the Large Vessels of the Equine Croup and Thigh. Veterinariya, #5, (May, 1948): 17-20.

CLINICAL DATA

The Veterinary Public Health Significance of Q Fever

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THE PURPOSE of this article is to bring together some of the available information concerning Q fever and particularly to indicate what rôle domestic animals play in the transmission of the etiologic agent to man.

In 1937, Derrick[1] and Burnett and Freeman[2] reported on a new disease entity in the Queensland area of Australia to which they gave the name Q fever. The etiologic agent was found to be a Rickettsia and to it Derrick assigned the name *Rickettsia burnetti*. Workers, investigating the outbreak in Australia, noted that the disease affected packing house workers and dairy farmers primarily. Davis and Cox[3], of the U.S. Public Health Service, in 1935 isolated a rickettsial agent from *Dermacenter andersoni* ticks collected near Nine Mile Creek in Montana. Cox suggested that the name *Rickettsia diaporica* be given to the organism because of its filter-passing ability. In 1941, Bengtson[4] demonstrated immunologic relationship between *R. burnetti* aand a Rickettsia isolated from a human case in the United States by Dyer of the U.S.P.H.S.

Additional workers produced evidence that the Rickettsia isolated in the United States and in other countries were strains of *R. burnetti*. Topping and his coworkers[5] provided additional proof of the close immunologic relationship between the American, Australian, Italian (Henzerling), Balkan grippe, and Panamanian strains of the Q fever rickettsia. The name *Coxiella burnetti* has been assigned the etiologic agent by Bergey[6] in honor of Herald Cox who first described the organism in experimentally infected guinea pigs.

C. burnetti, as defined by Bergey, is a pleomorphic organism of a size ranging from 0.4μ in the lanceolate rods to 1.5μ in the diplococcic form. The organisms are nonmotile and stain reddish purple with Giemsa stain. They readily pass Berkfeld N and W filters, which are impermeable to ordinary bacteria and to the Rickettsia of endemic typhus and Rocky Mountain spotted fever. The organism appears both intra- and extracellularly in tissue culture and may be cultivated with ease in minced yolk sac tissue suspended in human ascitic fluid.

Cox[7] has shown that the organism is most infective when grown in the yolk sac of developing chick embryos. Infective titers up to 1:100,000,000,000 are produced when the organism is grown in this manner. Somewhat lower titers are produced with infected mouse spleen emulsions and they are generally of lower virulence.

Symptoms of Q Fever

The Q fever organism is pathogenic to man, guinea pigs, and white mice, while cattle and sheep may acquire the infection naturally without showing clinical evidence of the disease. In Australia, bandicoots are considered reservoirs of the organism. Symptoms of fever and depression appear in guinea pigs following an incubation period of from four to eight days. Death generally occurs two to three weeks after, the temperature has returned to normal depending on the severity of the infection. Similar, though milder, symptoms appear in cattle infected experimentally[2] and complete recovery follows the febrile period. In human beings, the incubation period ranges from fourteen to thirty-two days and symptoms are suggestive of pulmonary involvement. Necropsy of infected guinea pigs reveals enlarged inguinal and mesenteric lymph nodes.

The spleen is engorged with blood and rupture of this organ is frequent.

Derrick and others[9] inoculated calves with virulent suspensions of the organism and sacrificed the animals at the height of the febrile period. The only pathologic changes noted in these animals were an increase in the pericardial and peritoneal fluids. An emulsion of the spleens of these calves injected into guinea pigs resulted in reproduction of the disease. Additional experiments by Derrick showed that disease-free ticks could become infected if allowed to feed on infected cattle. Of the arthropods, ticks of the genera Dermacenter, Amblyoma, and Boöphilus appear to be the most important vectors of the disease in the United States. Other ectoparasites have been incriminated but ecologic factors seem to limit their importance. According to Smith[9], direct human infection resulting from the bite of certain Australian ticks, notably *Ixodes holocyclus*, is possible. He postulates that cattle may play a part in the transmission of the organism but are not entirely necessary for human infection.

EPIDEMIOLOGY

It is interesting to note that on Moretan Island, near Australia, no human cases have been reported even though infection of bandicoots and bandicoot ticks with *C. burnetti* is common.[2] It is believed by Derrick that the absence of cattle on the island may be significant in preventing human infection.

Of the 118 cases occurring in the Brisbane outbreak, 112 were in packing house workers. Investigation of the additional cases which occurred in the rural area near Brisbane showed that most of them had been associated with cattle.[11] The serums of 879 dairy cattle in the Queensland area were tested for agglutinins to Q fever by the investigators and of these, 13 were found to contain significant titers. These positive serums came from 5 farms where Q fever had occurred in human beings.

In Italy, 8 outbreaks of Q fever occurred among American Army personnel, and association with domestic animals or their ectoparasites was a constant finding.[12] The fact that no cases were reported in the civilian population suggests that the disease is endemic in the area and that the native population has become immune through constant exposure. It is believed by army investigators[12] that many of the cases of "primary atypical pneumonia" of unknown etiology occurring in American troops were caused by the Q fever organism. More than 500 additional cases of Q fever occurring among American troops recently returned from Italy and stationed at Camp Patrick Henry, Va., indicates the virulence of the disease and the explosive manner of attack.[13]

Epidemiologic studies of the Amarillo, Texas, outbreak[14] showed that livestock handlers and packing house workers were, in most cases, the only persons to contract the disease. In this outbreak, a total of 55 cases occurred among 136 people working under similar conditions of exposure, an attack rate of 40 per cent. It is interesting to note that only those persons in intimate contact with raw meat, such as those working on the killing floor and in the boning and sausage departments, became infected, while those not working with meat but employed in the same building failed to contract the disease. In the sausage department, a total of 18 persons were exposed, including 10 women and 8 men. The women worked with the cased sausage only, while the men handled and processed the meat. Five of the 8 men contracted the disease and of these 1 terminated fatally, whereas no cases developed in the women. The symptoms exhibited by the cases as a group were referable to the respiratory tract and varied from a mild pulmonary involvement to severe pneumonitis with 2 deaths. Roentgenographic evidence of pneumonitis was an almost constant finding among the hospitalized patients.

Sheperd[12] of the U. S. Public Health Service reported an outbreak of Q fever involving over 30 cases in one of the larger packing houses in Chicago. All of the cases had worked on the calf and sheep killing floors and were engaged in operations causing spattering of blood or body fluids. The evidence pointed to a droplet infection rather than an infection by ticks or other arthropods. Buying records showed that the sheep had been shipped from 11 midwestern states while the calves originated from within a radius of 200 mi. of Chicago.

In the Southern California outbreak, *C. burnetti* was recovered from the raw milk of four dairies in Los Angeles County by Public Health Service workers.[13] The organisms were isolated from

pooled milk samples by each of three different laboratories operated by the National Institute of Health. Extensive serologic surveys revealed that 10 to 20 per cent of the cattle of five dairies in this area possessed antibodies for Q fever. In one dairy where a human case occurred, three of the five milk specimens collected were found to contain the Q fever organism. The evidence presented suggests that the disease is endemic in southern California, and other outbreaks can be anticpated.

In addition to these naturally occurring outbreaks, laboratory outbreaks are common. Propagation of the organism in the laboratory is a hazardous occupation and personnel must exercise care in preventing chance exposure to themselves and other persons in the immediate vicinity of the laboratory. An institutional outbreak of pneumonitis occurring at the National Institute of Health in Bethesda, Md., was reported by Dyer and his associates[14] and was found to be caused by the Q fever organism, which was being studied in a laboratory in the building. Most of the cases occurred in nontechnical personnel, remotely associated with the laboratory. Other laboratory outbreaks have occurred in Army laboratories at Fort Bragg, N. Car., and in Italy. It has been shown that laboratory technicians often develop a high level of immunity to the organism without showing clinical evidence of the disease.

INCIDENCE IN NORTH CENTRAL STATES

Since the north central area of the United States presents different geographic and climatic conditions from the areas where Q fever has previously occurred, it was felt that a survey of the serums of cattle in this area might be of value in determining if any reservoir of the disease is present. Therefore, the writers conducted complement fixation and agglutination tests on the serums of Michigan cattle to determine if such a reservoir was present. Over 200 serums from 25 herds located in various parts of the state and from the killing floor of a Detroit packing plant were tested by both methods. The results failed to show specific agglutinins or complement fixing antibodies of *C. burnetti* present in any of the cattle tested. The method of the Army Medical School was used in the complement fixation test in which two units of complement, three units of antigen, and dilutions of test serum up to 1:10 were utilized. Yolk sac antigen prepared according to the method of Cox[7] was utilized in both methods, and positive guinea pig serum obtained from the National Institute of Health was used in the controls. Though conclusive results cannot be drawn from this survey, it is felt that the incidence of Q fever in Michigan is low. Neighboring states are thought to reflect a similar situation. In this respect, the apparent low incidence of ticks in these areas may be significant.

CONCLUSION

The apparent ease with which Q fever is spread suggests that further work is necessary, especially from the standpoint of establishing the method of transmission. The epidemiology of the outbreaks reported strongly suggests that cattle play more than an incidental part in transmitting the infection, though their exact rôle has not been clearly established.

The western states, where the cattle population is high and ticks are prevalent, present a situation whereby an endemic area could readily be established. It is conceivable that cattle from these areas transported to feedlots and distant markets could carry the infection without themselves showing clinical evidence of the disease and thereby institute an epidemic outbreak among human susceptibles.

Though Q fever is not extensive at the present time in the United States, the disease is considered important enough by public health officials to warrant further investigation.

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New Virus Diseases*

It is generally agreed that the list of maladies of plant and animal life commonly called virus diseases is not complete. Known entities or syndromes thereof, previously absolved of any parasitic relations, continue to enlarge the list. P. Goret *(Rev. Méd. Vét.*, May, 1948) points out various additions to virus pathology:

The cat suffers from a rickettsia characterized by inflammation of the upper air passages with cough, difficult breathing, mucopurulent discharge from the nose and eyes, and an anterior lobar pneumonia that is symptomatically comparable to psittacosis.

In swine, McNutt, Leith, and Underbjerg have described an ultravirus malady of hogs characterized by arthritis, peritonitis, pericarditis, and pleurisy that is not related to "swine flu."

Whitehair and coworkers described an intestinal disease affecting 100 per cent of a certain herd which they were able to reproduce with filtered material. This disease had been previously described by Madsen and by Graham.

The etiology of a diarrhea of newborn pigs (baby pig disease), in the light of the classical researches of Young, is obviously caused by a virus of congenital origin.

Sheep suffer from a venereal infection affecting the penis, prepuce, and the vulva which Tunnicliff and Matisheck have reproduced in rams by inoculations of sterile filtrates. A contagious pneumonia of sheep has been transmitted with filtered material by Zaki Morcos of East Africa.

The goat is the victim of a pulmonary "influenza" caused by a hemoglobinophilic agent differing from that of contagious pleuropneumonia.

In cattle, the etiology of pneumonia and scours in calves points accusingly to the presence of one or more viruses. In fact, Gallo isolated a virus from calves affected with pneumoenteritis, and later Baker reproduced the disease in laboratory mice with filtrates from the lungs of young calves. Olafson and coworkers, from a virus diarrhea of calves, reproduced a disease in young cattle that was symptomatically comparable to rinderpest. Baker and Little described a "spring mastitis" characterized by clotted, bloody milk loaded with poly- and mononuclear leucocytes, the animals presenting no sign of illness except a rise of temperature. The virus was cultivated on chicken embryos and reproduced in the form of a thermic reaction in guinea pigs.

In South Africa, De Kock traced *knopvelsiekte*, a nodular affection of the skin and mucous membranes and sometimes of the splanchnic organs, to a virus transmitted by insect bites.

Blackmore described a kerato-conjunctivitis that differs from keratitis caused by *Hemophilus bovis* (Baldwin) and rickettsial conjunctivitis. The causal agent was shown to be an ultravirus.

In horses, virus abortion of mares reported by Dimock and Edwards now stands out clearly among the diseases of the virus group. *Salmonella abortus equi*, if present, is not a factor.

In dogs, a logical question is whether epidemic hepatitis of man is related to the contagious hepatitis of dogs, recently described by Sven Rubarth as a virus disease. Perhaps the infectious jaundice of cattle in Russia reported by Surnchen belongs to the same category.

In poultry, since 1942, the cause of blue comb of chickens has been recognized as a filterable agent present in the blood, intestinal contents, and feces of the affected bird. The disease can be reproduced by chicken-embryo cultures and filtered feces administered *per os*.

Thus, a dozen or more diseases of domestic animals have been added to the list of virus diseases in recent years. Properly speaking, none of these are "new" diseases. The newness lies in the strange differences of their effects and particularly in the still mysterious biology of their causal agents.

*Condensed from Revue de Médecine Vétérinaire, 99, (May, 1948) : 229-234.

Benadryl is reported to be useful in treating some cases of dry, cracked, and scabby nostrils in dogs.

Sulfamerazine in the Treatment of a Pseudomonas Infection of Turkey Poults

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PSEUDOMONAS infection in turkeys appears to be a rare disease. It is difficult to diagnose since the syndrome is similar to other diseases that infect poults. Consequently, many undiagnosed outbreaks may occur. Stafseth, Mack, and Ryff[1] described a Pseudomonas infection in approximately 19,000 maturing turkeys, with a morbidity of nearly 50 per cent, but with a surprisingly low mortality. They found the organism pathogenic for the common laboratory animals. Two-week-old bronze poults were susceptible when the organism was administered by mouth. Attempts to infect adult turkeys, or chickens 6 weeks old or older by mouth, met with little or no success. Peterson[2] reported the isolation of a Pseudomonas organism from several 3-week-old poults received for examination from a farm where severe losses had occurred. He found that newly hatched chicks were susceptible to infection when the organism was placed in the drinking water for two successive days.

The use of chemotherapeutic agents as a treatment for such infections was not mentioned in the above reports. Various sulfonamides have been used effectively in the treatment of enteric and septicemic diseases caused by gram-negative organisms. For this reason, one of these sulfonamides, sulfamerazine,* was chosen for the treatment of the Pseudomonas infections described here.

MATERIALS AND METHODS

In May, 1946, several bronze poults were brought in for examination from a farm where severe losses had occurred. The poults varied in age from 3 days to 3 weeks. Birds 4 weeks old and older in adjoining lots showed no signs of infection. A similar outbreak had occurred in the last hatch of poults the previous year. Since older birds were not affected, the abnormal losses were assumed to be due to the late hatch and warm weather. Symptomatically, this outbreak resembled, and was thought to be, a paratyphoid infection or possibly pullorum disease. Five poults that had died recently, and 5 with symptoms ranging from complete listlessness and watery diarrhea to a slight morbidity, were autopsied and examined bacteriologically. The heart, liver, and spleen of each bird was plated on heart infusion agar.

Pseudomonas organism was isolated from 1 bird; the other plates remained sterile. This organism was considered to be of no importance at that time.

In view of the severe losses that had occurred, it was decided to feed a medicated mash until the bacteriologic examination could be completed. Sulfamerazine, 0.5 per cent, was added to the mash and offered immediately to all visibly sick poults for three days. Since heavy losses continued, the medicated feed was withdrawn on the fourth day and replaced with the normal ration.

Total losses in 1946 attributed to this infection were approximately 3,000 poults, or about 60 per cent of all infected lots.

In April, 1947, several bronze poults were received from this same farm and the symptoms appeared identical to those exhibited the previous year. Sulfamerazine (0.75%) was added to the mash of all poults that had begun to show signs of infection. Several of the birds were autopsied and examined bacteriologically. A Pseudomonas was the only organism isolated. It was suspected that it was the causative agent. A study of the morphologic and physiologic characters of the organism revealed that it was undistinguishable from *Pseudomonas aeruginosa* as described by Bergey *et al.*[3] The pathogenicity of the organism for day-old Beltsville white poults was tested by the administration of 0.5 cc. of a 24-hour broth culture *per os* to each of 12 poults, and by spraying or atomizing 5 cc. of the culture over 13 other poults. A total of 25 birds were challenged by these methods. On the fifth day, 4 poults in the atomized group died and all of the poults were clincially ill. Symptoms were typical of those observed in the natural outbreaks. Ten poults (40%) had died by the time they reached 2 weeks of age. Of these, 7 were from the atomized goup, and 3 from those given the organism *per os*. The organism was reisolated from 2 of the 10 poults that died.

Sulfamerazine, 0.75 per cent in the dry mash,

Technical Contribution No. 155, South Carolina Agricultural Experiment Station, Clemson, S. Car.

Assistant in Animal Pathology (Jones), Associate Animal Pathologist (Anderson).

*Supplied through the courtesy of the Medical Research Division, Sharp and Dohme, Inc., Glenolden, Pa.

apparently was beneficial during the outbreak of 1947. The poults stopped dying and symptoms disappeared on the third day after treatment was started. The total mortality up to and including the treatment period was approximately 2 per cent. The medicated feed was replaced with regular feed on the fourth day and no further abnormal losses occurred.

DISCUSSION

The data presented indicate that poults infected with a Pseudomonas organism and treated with 0.75 per cent sulfamerazine in the mash definitely were benefited. Treatment was started as soon as the first signs of infection appeared. Since all lots were treated during this outbreak, no untreated controls were available to determine the morbidity and mortality that might have occurred. Poults challenged artificially with the isolated Pseudomonas organism suffered a mortality of 40 per cent.

Sulfamerazine, 0.5 per cent, administered during the outbreak of 1946 was of little or no benefit, probably because treatment was not started until three days after the onset of infection, and by that time 70 to 80 per cent of all infected lots were extremely morbid and listless. No doubt, a high percentage of these poults were too sick to consume the medicated feed in sufficient quantities to realize any benefit.

The increased quantity of drug (0.75%) in the mash and its administration before morbidity in any of the lots had reached approximately 5 per cent probably were the most important factors in controlling the outbreak of 1947. The total mortality during this outbreak was approximately 2 per cent. The infection spread rapidly in all outbreaks, but its source could not be determined. Good management and husbandry practices were being followed. The day-old poults were segregated at the time of delivery into lots of approximately 1,000 and maintained on deep litter (shavings) until they were ready for the range.

CONCLUSION

1) Sulfamerazine 0.5 per cent was not effective in controlling a natural outbreak of a Pseudomonas organism infection in turkey poults (1946). This was probably due to the high morbidity in evidence (70 to 80%) at the time the drug was administered.

2) Sulfamerazine 0.75 per cent apparently was effective in controlling a similar outbreak the following year (1947) when administered before the morbidity had reached approximately 5 per cent in any of the affected lots. Success was attributed to the early use of the chemotherapeutic agent. The increased quantity of drug used over that of the previous year may or may not have been a contributing factor. The mortality due to the disease was approximately 2 per cent.

3) The observations recorded with respect to these outbreaks indicate that sulfamerzine was effective in controlling a natural outbreak of a Pseudomonas infection when an early diagnosis (tentative) was established and treatment was provided promptly.

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Improve Tests for Racetrack Doping.—Better methods of detecting small amounts of drugs in animals have been announced by the legal medicine department of Harvard University *(The Blood-Horse*, Sept. 11, 1948). In the case of certain barbiturate compounds, for example, the new techniques make it possible to correlate the blood concentration of the drug with the amount taken in, and the time of administration with the clinical effect. The results are expected to help track authorities cope more effectively with dope cases in greyhounds and horses. The tests also are applicable to human medicine.

That Billion Dollar Industry.—Speaking of "firsts," credit F. E. Beaudette, then of Kansas State College, with being first to remind the veterinary profession that it was overlooking "a billion-dollar industry." At the Fourth Annual Veterinary Conference, University of Illinois, July 10, 1923, or more than twenty-five years ago, Dr. Beaudette gave birth to the term by placing the dollar value of the chickens on American farms at $1,047,000,000, as of that date.

Mixing penicillin with a contaminated diluent has caused serious production losses in some dairy herds, particularly in the hands of lay users.

Swine Fever—A Case Report

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EARLY in April, 1942, I was called to a pig-breeding farm in Upper Egypt three weeks after the appearance of illness. At that time, there were about 170 pigs left of various ages—the majority young but weaned, a few sucklings and adults.

SYMPTOMS

The main identifying symptoms and postmortem lesions were: rise of temperature with all fever train symptoms; loss of appetite, weakness; partial loss of control of hind quarters and a characteristic swaying movement; eyelids swollen, inner canthus discharge; rapid emaciation; a few also showed typical pneumonic symptoms. Intestinal changes varied, some were constipated while others had diarrhea.

A description of the major postmortem lesions on 5 pigs immediately after death follows:

1) Intestinal lesions were prominent in all 5 cases; hemorrhagic inflammation of the intestinal mucous membrane was most evident as brownish gray erosions in the colon and cecum and pronounced on the ileocecal valve. In 1 medium-sized pig, there were small, typical, raised button-like ulcers about 3 mm. in diameter. (In cases of acute abortion, intestines were hemorrhagic but not ulcerated.)

2) Abdominal lymph glands were swollen and hyperemic.

3) Kidneys under capsule showed pinhead hemorrhages (*see* fig. 1). (This was not as constant as ulceration.) The liver

Fig. 1—Acute experimental swine fever lesions on the seventh day following Seitz filtrate of blood.

and spleen as well as the skin looked more or less normal.

4) In 3 cases, the lungs were almost normal except for emphysematous patches possibly caused by straining, while 2 cases showed pneumonic patches (pasteurellosis).

TABLE I—Temperature Record of Pig Inoculated with Controlled Filtrate

Date April, 1942	Morning temperature (C.)	Evening temperature (C.)
13	38.6	38.8
14	38.0	38.6
15	38.4	38.5
16	38.3	38.9
17	38.8	40.0
18	40.4	40.0
19	39.8	40.0
20	39.8	40.0
21	40.0	40.3
22	Found dead	

MATERIALS AND METHOD

Blood films were negative in 3 of 5 cases, while 1 revealed a few gram-negative, slender bacilli, and 1 showed small, plump, gram-negative organisms. *Babesia suis* was seen in all cases.

Blood Cultures.—Brucella suiseptica was isolated from 2 cases. The culture (0.2 cc.) killed 2 rabbits and 2 guinea pigs on the third day of intramuscular inoculation of 24-hour broth culture and killed 2 pigeons on the eighth day after inoculation.

The organism produced acid in glucose and saccharose and, to a lesser degree, in mannite. Indol was produced. The organism was non-motile, noncapsulated, and nonspore-bearing.

No organism was recovered from the blood of the other 3 dead pigs and no Salmonella was isolated; samples were collected on the spot immediately after death.

Filteration.—Citrated blood collected from the 5 pigs was mixed and passed through a 2-in. Seitz filter at 20 C., under 70 mm. pressure for ten minutes. Filtrate seeded on serum agar proved sterile and 1 cc. of this controlled filtrate was inoculated intramuscularly into a pig just weaned. This pig was from an uninfected farm about 60 mi. distant.

Early on Apr. 12, 1942, the pig's temperature, before inoculation, was 38.8 C.; the same evening, after inoculation, it was 38.7 C. The temperature record for the next ten days is shown in table 1.

Autopsy lesions of the inoculated pig (fig. 1) disclosed ulcerated, hemorrhagic intestinal mucous membrane and kidneys and swelling of the lymph glands, but the lungs were normal.

This confirmed the outbreak to be swine fever which is occasionally associated with *Br. suiseptica* and almost always with Babesia in Egypt.

Attempted Vaccination.—Since no immune serum was available, formalinized vaccine was prepared as follows:

Spleens of dead cases were minced in a sterile, very fine mincing machine and emulsified in sterile mortar—5 Gm. of tissue to 95 cc. of glycerine. Saline and formalin were added to make a dilution of 1:500. This was shaken daily for five days before use. Medium-sized pigs were inoculated with 5 cc. and adult pigs with 10 cc. intramuscularly.

This was carried out as a desperate attempt, as all the animals were in one enclosure; 170 pigs were vaccinated and all except 27 died within a month.

RABBIT NEUROTROPIC VIRUS

Early in October, 1947, an outbreak occurred among pigs in Mattaeria on a small farm of 15 pigs, the blood Seitz filtrate was tested and passed in to a normal young pig. It produced swine fever. The pig, which died on the eighth day after inoculation, showed typical intestinal ulceration as well as pin-head hemorrhages under kidney capsules.

Since all antigens of virus infections attenuated or inactivated by chemicals are most unreliable, an attempt at attenuation *via* passage into other animals was made.

Source of Virus Used.—All animals were anesthetized with ether and inoculated subdurally with 0.1 cc. of citrated controlled pig's blood, 1:20 dilution. Adult white rabbits were trephined (trephine 4 mm. in diameter) ten days before inoculation.

1) White mice, 2 months old, bred on the premises. Ten mice, inoculated with a loss of 1 during inoculation, were kept two months under observation without showing any symptoms and were then destroyed. Mice subdurally inoculated proved nonsensitive to swine fever virus.

2) Adult, aged, breeding rabbits, Egyptian breed. Ten rabbits, inoculated without loss, did not show any deviation from normal. They were kept under close observation for two months and then destroyed. Adult, fully grown, male rabbits, Egyptian breed, proved neutral to swine fever virus.

3) Young, just weaned, Egyptian-bred rabbits. Ten rabbits were inoculated with a loss of 2 during inoculation. Of the 8, 1 (A) died on the twelfth day after inoculation without any apparent nervous symptoms. Blood cultures were negative. The brain of the dead rabbit was emulsified in

50 per cent glycerine saline, 1:20 tissue dilution. After two months, the remaining 7 rabbits were destroyed.

a) Six rabbits just weaned were inoculated with the brain emulsion of rabbit A, and 1 (B) died on the ninth day after inoculation. The blood of rabbit B was negative to microörganisms.

b) Six rabbits just weaned were inoculated with the brain emulsion of rabbit B, and 1 rabbit (C) died early on the fifth day. Blood cultures again were negative.

At this time it was impossible to acquire more rabbits in proper condition and Mr. Daubney, veterinary expert for the Ministry of Agriculture, permitted me to inoculate 2 young pigs with 10 cc. of the brain emulsion of rabbit C (1:20 in glycerine saline with ether ½%). Unfortunately, the pigs were in poor condition and died the second day after inoculation.

The work has been stopped, temporarily, but rabbits and pigs have been purchased for breeding for future experimental purposes. Meanwhile, it is believed that these results should encourage large scale experiments using different breeds of rabbits.

Cancer in a Female Dog

The patient, a 3-year-old Scottish Terrier, was examined on June 8, 1948. The owner had diagnosed the case as mumps. Pulse and respiration were normal; temperature was 103 F. Mucous membranes appeared normal; the tonsils were enlarged; cervical, axillary, inguinal, popliteal, and mammary lymph glands were noticeably enlarged. A provisional diagnosis of leucemia was made, pending the outcome of blood and urine examinations. These reports from the local clinical laboratory were normal.

A positive diagnosis of leucemia was then made and the client was told that such cases are always fatal. Treatment was requested, however, and penicillin in oil and wax was administered for five successive days; 300,000 units were given daily. The temperature returned to normal and the case was dismissed. There was no visible change in the size of the lymph glands, although they were no longer tender to touch.

The patient was returned nine days later with a history of being irritable and cross. Physical examination revealed a temperature of 104 F., with considerable soreness of all palpable lymph glands. The owner insisted on treatment. Sulfamethazine was administered intravenously for five successive days. Temperature returned to normal in twenty-four hours. The patient was sent home apparently normal except for swollen glands.

Seventeen days later, the patient was returned to the clinic, suffering from respiratory dyspnea and anorexia. Cervical and pharyngeal lymph glands were pressing on the trachea.

Sulfamethazine and penicillin were administered together, as the patient again had a high temperature. The client was told that the case was hopeless. Speculating on the theory that the spleen was the focal point, the producer of cancerous blood cells, the alternatives of euthanasia or splenectomy were offered.

The client chose the latter, and surgery was performed as soon as the temperature returned to normal and the patient had improved. The spleen was found to be tremendously enlarged, weighing approximately 3 lb., very friable, and full of nodular growths surrounded by a gelatinous material. Nembutal was used as the anesthetic and surgery required thirty minutes. The patient was given 125 cc. of intragel and 2 cc. coramine, postoperatively. Death from heart failure occurred three hours after surgery.

Postmortem findings were significant. Mediastinal and mesenteric tumors were located. The latter were large and were pressing on the intestines, apparently causing no distress, as the dog exhibited anorexia only once.

The case is considered significant for three reasons: (1) the age of the patient, (2) the normal blood count and urine examinations, and (3) the prognosis given to the owner originally and the fatal termination.—*Russell Greer, A.B., D.V.M., La Jolla, Calif.*

Chest X-Ray

In the September issue (p. 250) of the JOURNAL, the x-ray picture of the chest (left lateral view) of a Beagle Hound is up-side-down. The article which it accompanies is titled "Diagnosis by X-Ray of Interstitial Pneumonia" by Drs. J. V. Hills and R. L. Hall, Gowanda, N.Y.

A Report on "XX Disease" in Texas

CHARLES L. BOYD, D.V.M.
Grandview, Texas

ON JAN. 14, 1948, I was called to see 2 calves approximately 10 months of age. The calves, found sick in the pasture that day, were reported to have been all right up to that time.

The following symptoms were found upon examination: excessive salivation; rough, long hair; skin along the neck and shoulders greatly thickened and lying in corrugated folds; lacrimation; dyspnea; of the animals in order that an autopsy might be conducted.

Both animals died four days later. On autopsy, the following things were found: ulceration of the esophagus; severe stomatitis; severe enteritis; bilateral pneumonia with a frothy, blood-stained exudate; the kidneys and liver were grayish; the lacrimation, which had stained the hair of the face, was serous and sticky. There

Fig. 1—Calf 3 showing long hair, eye condition, and salivation.
Fig. 2—Calf 4 showing extensive alopecia.

wartlike growths on the surface of the skin in the inguinal region; wartlike ulcers on the dental pad, tongue, and buccal mucosa; diarrhea. Both moist rales and dull areas were audible with the stethoscope. The temperature readings were 104 and 104.8 F. Both animals, although rather emaciated, were attempting to eat.

A tentative diagnosis was made, *i.e.*, possibly aphthous stomatitis but more probably "xx disease." An unfavorable prognosis was given at the time.

The treatment given was: 500 cc. of a mixture of 50 per cent dextrose and saline; 400 gr. of sodium sulfamethazine intravenously; 150 gr. of sulfamethazine orally; 5 cc.-33.4 mg. solution thiamin hydrochloride; and 4 oz. of a kaolin and bismuth preparation orally. These preparations were administered at approximately 10:00 a.m.

At 8:30 p.m. the same day, 1 oz. of sodium iodide was given intravenously. A solution of potassium permanganate was dispensed and directions given for rinsing the mouth. Instructions were left with the caretaker to advise me in the event of death

was no discoloration or opacity of the cornea or anterior chamber as found in infectious keratitis.

Communication was made with Dr. Hubert Schmidt of the Texas Agricultural Experiment Station, Veterinary Research Department. Specimens from the autopsy were forwarded to him, and a confirmation of the diagnosis was asked.

In the meantime, another Hereford calf approximately 7 months old was found to be affected with the same condition. It was still nursing and was in somewhat better condition than the first 2 animals. During this time, another veterinarian had been called and, unfortunately, he did not care to collaborate on the case. He dispensed a 250-cc. bottle of di-sulfalac to be given by the caretaker once every twelve hours. No other treatment was administered. A diagnosis of infectious stomatitis was made. The temperature reading on this animal was 103.4 F. at 4:00 p.m.

On January 20, Dr. M. E. Rentler from the Division of Veterinary Science, Texas Agricultural Experiment Station, arrived

to see the newly affected animal and to confirm the diagnosis. The diagnosis was confirmed as xx disease by both Dr. Rentler and Dr. Schmidt.

No further treatment was given the affected calf. Three weeks later, on a call to the farm, an inquiry was made as to the condition of the calf. The caretaker stated that the animal had recovered, which later proved to be false.

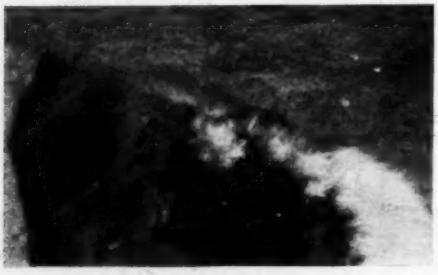

Fig. 3—Calf 4 showing skin condition with vegetative areas.
Fig. 4—Calves 3 and 4 showing bald areas following apparent recovery. Calf 4 died shortly after this picture was taken.

On April 22, I was called to the farm to immunize 52 calves against blackleg. As the animals were run through, several were noted to have a thickening of the skin. One, a calf about 13 months of age, was exhibiting typical symptoms of xx disease. Also, calf 3 was still showing typical symptoms, although his condition had improved. The calf found on this call (hereafter known as calf 4) was placed in a small pasture for experimental treatment.

On April 26th, calf 4 was given 350 cc. of a cobalt and dextrose solution intravenously, with 500 mg. of nicotinic acid solution. The entire herd was put on a multiple mineral supplement. Due to distance, time element, and other calls, no other treatment was given. Eight days later, Dr. Hubert Schmidt arrived from the experiment station to look over the case. He confirmed it as xx disease and recommended: "Knock the animal in the head." This was not done, but the animal died several weeks later of exhaustion, as a result of being in a bog hole in the creek.

On July 15, I was called to treat a "downer" cow following calving. Another typical case of xx disease was seen in the herd. At this time, I was advised that the owner planned to sell all of his young stock to the highest bidder.

On April 20, another cattle owner about 12 miles from the above-mentioned farm brought to the office a heifer showing typical symptoms of xx disease. It was recommended that the animal be sold immediately without treatment. This animal, purchased at San Angelo as a stocker calf, had wintered well but had failed to gain weight and had not shed her long hair in the spring. Other typical lesions were found upon examination.

SUMMARY

In a herd of 84 registered Hereford cattle, 5 have been affected with severe cases of xx disease. The new type disease is apparently noninfectious, in as much as it has not spread to neighboring herds, and has not spread by contact in the same herd. Only young animals—those under 2 years of age—have been affected in this herd. At present, there is no known cause, no effective treatment, and the final termination is death. Those animals which show a tendency toward recovery develop extensive alopecia.

"Equine Encephalomyelitis." — The first to cause the adoption of this term in veterinary literature was Dean C. H. Stange of Iowa State College, when he read a paper before the Iowa State Veterinary Medical Association, November, 1912, entitled "Epizoötic Equine Encephalomyelitis," in describing the horse plague that swept through Kansas that summer. Previously, the disease had been described under various names: forage poisoning, mold poisoning, blind staggers, sleepy staggers, brain fever, cerebritis, cerebrospinal meningitis, leucoencephalitis, Borna disease, and others. The disease occurred in Europe in 1813 and in the United States in 1847.

Sodium Sulfamethazine in Treatment of Actinomyces Necrophorus Infections of the Bovine Foot

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San Luis Obispo, California

THE INTRODUCTION of the intravenous use of sodium sulfapyridine by Forman[1] has revolutionized the treatment of foot rot (infectious pododermatitis) in cattle. Kingman and Stansbury[2] first reported the use of sulfapyridine for the treatment of *Actinomyces necrophorus* infections of the foot by topical application to the affected area. Newton[3] reported the successful use of sulfasuxidine and sulfathalidine by a similar method. Shortly following the report on the use of sodium sulfapyridine by Forman, this drug became difficult to obtain, apparently because leading manufacturers discontinued production of the drug, due to its limited acceptance in human medical practice.

In view of this shortage, a search was made for other sulfonamides which might prove to be efficient in the treatment of foot rot and other necrophorus infections. Forman *et al.*,[4] reported that 35 per cent of the cows treated with 60 Gm. of sodium sulfathiazole and 27 per cent of the cows treated with 90 Gm. of sodium sulfathiazole had to be retreated. McAuliff and Phillips[5] reported the successful use of 60 Gm. of sodium sulfamerazine intravenously for the treatment of foot rot. Candlin[6] has reported that an optimal dosage of 3 Gm. per 100 lb. of body weight gives good results when sodium sulfamerazine is used intravenously for the same disease.

Welsh, *et al.*,[7] have demonstrated that higher blood concentrations of free sulfonamide on the same dosage schedule could be attained with sulfamethazine than with any of the six sulfonamides with which it was compared. Figure 1 shows the comparison of blood concentrations attained by seven sulfonamides over a 24-hour period on a ½ gr./lb. of body weight dose. Thorp and Straley[8] reported that sulfamethazine used at the rate of 1 gr./lb. of body weight shows promise in the treatment of foot rot.

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Sodium sulfamethazine used in the clinical work reported in this paper was furnished by Lederle Laboratories.

The clinical results reported herein are based on the author's experience in the treatment of infectious foot rot with intravenous solutions of sodium sulfamethazine. The cases reported are drawn from a college herd where foot rot has been enzoötic for many years. The disease has been observed to run in cycles over a period of years, and during the time the following data were collected the incidence of the disease was at a peak. Most of the cases encountered were type 1 and type 2, as reported by Forman, *et al.*[4] Type 1 is described as those cases which show no visible skin lesions but in which the foot is hot and painful. When successfully treated, this type does not slough necrotic tissue. Type 2 is the interdigital phlegmon. The animals treated had been observed to be lame from one to four days before treatment. Most of the animals ran temperatures of 103 to 103.5F. There was often a decline in milk production.

TREATMENT

The only treatment used on the 27 cases reported herein was sodium sulfamethazine intravenously. The foot was handled only sufficiently to make a diagnosis of foot rot and to classify it as to type. Ten and 25 per cent solutions of sodium sulfamethazine were used. The preparation was sterile and was not stored under refrigeration. The drug was administered through a 16-gauge needle, gravity flow, allowing between ten and fifteen minutes for the administration of 500 cc. of fluid.

Total single dosage ranged from 25 to 125 Gm. with 50- and 62.5-Gm. doses being the most frequently used. The cows treated ranged in weight from 800 to 1,700 lb. On a weight basis, the dose varied from 3 to 10 Gm./100 lb. of body weight. Weights were estimated by use of a weight tape. The results have been compiled in table 1 showing the response to various size doses on a weight basis.

All animals responded to a single dose with the exception of 2 Holstein-Friesian

cows, each of which weighed about 1,500 lb. and each received a total dosage of 50 Gm. at the first treatment. Because recovery from lameness was not satisfactory one week following treatment, and there had been some decline in milk production, a second treatment of 125 Gm. was given to each cow. Both responded to the second treatment.

TABLE I—Results of Various Size Doses of Sodium Sulfamethazine for the Treatment of Infectious Foot Rot

Cases (No.)	Dosage Gm./100 lb.	Recovered one treatment (No.)
8	3.0- 3.5	6*
6	3.5- 4.5	6
4	4.5- 5.5	4
3	5.5- 6.5	3
2	6.5- 7.5	2
2	7.5- 8.5	2
1	8.5- 9.5	1
1	9.5-10.0	1

*Two of the cases were retreated at the end of one week because they had not shown satisfactory improvement. Each case was retreated with approximately 8.3 Gm./100 lb. Both recovered completely following the second treatment.

In many, the inflammation began to subside on the day following treatment, and in most of the cases recovery from lameness had occurred by the third day. Reduction in milk production did not occur to the same extent as when slower local treatment is applied to the foot.

SHOCK REACTIONS

No shock reactions have been observed in cows treated for foot rot with this drug. Cows receiving 25 per cent solutions of sodium sulfamethazine, however, have been observed at times to show an increase in respiratory rate. This occurs during the administration of the drug and subsides soon after the injection is completed.

Two cases of shock have been observed following the intravenous administration of sodium sulfamethazine for other conditions. In both, 25 per cent sulfamethazine solution was used and the dosage was very high. The shock did not terminate in death in either case.

The first case of shock occurred in a Hereford steer suffering from an advanced case of hemorrhagic septicemia. The steer weighed about 500 lb. and received 100 Gm. of sulfamethazine. This dose of 20 Gm./100 lb. of body weight is the largest the author has ever given. The symptoms were similar to those which are described in the second case.

The second case occurred in a Guernsey cow suffering from empyema of the frontal sinus. At the time of treatment, this infection was still obscure, and the cow was running a temperature of 106F. She had received 500 cc. of a bivalent sulfonamide preparation containing 12.5 Gm. of sulfapyridine, and 12.5 Gm. of sulfathiazole twenty-four hours earlier. At this time, the cow received 125 Gm. of 25 per cent solution of sodium sulfamethazine.

The cow had shown some evidence of shivering prior to administration of the drug. This shivering increased as the administration of the drug was completed. In about two or three minutes, the animal began to show evidence of incoördination. She attempted to step high and with each step would almost fall. She extended her head upward for a few moments and then suddenly it dropped and she fell to the ground in tonic spasms. As the convulsions continued intermittently without improvement for twenty minutes, the cow was given 100 cc. of a relaxant sedative containing 462 gr. of chloral hydrate and 386 gr. of magnesium sulfate. This brought about good relaxation and the cow showed no more convulsions. However, she did not attempt to rise for about four hours. The following day, the temperature was down to 101.5, and during convalescence no further ill effect from the treatment was noted.

Schroeder[9] has indicated that the sulfonamide solutions are highly alkaline. High alkalinity is necessary in order to get the drug into solution. When alkaline solutions of this kind are administered rapidly to a sick animal that has temporarily lost some of its buffering capacity, an im-

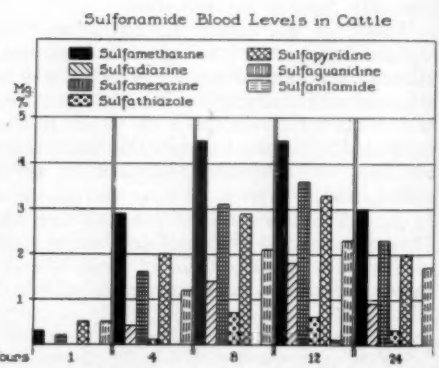

Fig. 1—The fate of ½ gr./lb. of body weight of seven sulfonamides in seven animal species.[7]

mediate acute alkalosis may be produced. This should be kept in mind at all times when administering sulfonamides intravenously, especially to animals that are very weak.

SUMMARY

Twenty-seven cases of foot rot in cattle were treated with intravenous injections of sodium sulfamethazine in dosages ranging from 3 to 10 Gm./100 lb. of body weight. All animals responded to a single treatment except 2, which required a second treatment, at which time a larger dose was given.

Preliminary evidence indicates that an optimal intravenous dose of sodium sulfamethazine for early acute cases of foot rot may lie between 3.5 and 4.5 Gm./100 lb. of body weight (0.5-0.75 gr./lb.)

Shock reactions may be produced by excessive dosages of the drug.

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[9]Schroeder, C. R.: Personal communication.

Sodium Fluoride Not for Chickens.—Sodium fluoride is a fine ascaricide for hogs, but don't try it on chickens, warn Edgar and Walsh of the Alabama experiment station *(Poult. Sci.*, July, 1948). At levels high enough to be effective against chicken roundworms *(Ascaridia galli)*, it was toxic to mature birds and caused them to go out of production, and it was virtually ineffective at any level against *Heterakis gallinae* and *Capillaria columbae*.

Penicillin in Treatment of Anthrax

Dr. H. L. Allen, practitioner of Demopolis, Ala., reports the successful treatment of Hereford heifers that were showing definite symptoms of anthrax.

Anthrax was diagnosed by the Alabama State Diagnostic Laboratory, July 6, 1948, after 4 animals had died. On July 7, 8, and 9, the herd of 400 head of cattle were vaccinated with anthrax bacterin using 5 cc. subcutaneously and 1 cc. intradermally. Following vaccination, 5 animals died within three days.

On the afternoon of July 10, 4 heifers were observed with profuse swelling in the submaxillary region and along the neck, temperature 105 to 106 F., and bloody discharge from the anus. These 4 animals received 1,000,000 units each of penicillin in oil during the next twenty-four hours.

On the morning of July 11, 4 other heifers were noted showing the above symptoms. They, also, received penicillin.

Marked improvement was noticed within twenty-four to thirty-six hours after receiving the three doses of penicillin, and the heifers were grazing. All 8 animals continued to show improvement and have entirely recovered. The heifers which received the penicillin, also received 5 cc. of bacterin on the morning of July 10.

At about 2 years of age, all of these 8 heifers were bred. Dr. Allen reported that all aborted within a week after showing symptoms.

It is interesting to note that all of the deaths in this herd of 400 cattle, occurred in a group of 61 head which were maintained in one small pasture.—*R. S. Sugg, D.V.M., Dean, School of Veterinary Medicine, Auburn, Ala.*

Mineral Poisonings in Swine

Of the various mineral poisonings in hogs encountered in clinical work, Walloin (*Thesis*, Paris, 1948) found that salt (NaCl) poisoning is the most common, because of its use as a condiment in the feed. Depending upon the age, body weight, and mode of ingestion, the dose should range around 2 Gm. per kilogram daily, *i.e.*, 100 to 150 Gm. for a 50-kg. hog (5 to 6 oz. for 110-lb. live weight). Arsenic and phosphorus were next in frequency, owing to the use of these chemicals as raticides. Zinc poisonings due to the use of galvanized iron containers for skimmilk were observed.

An Outbreak of Leptospirosis in Cattle

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Urbana, Illinois

LEPTOSPIROSIS in cattle in Russia has been reported by Mikhin and Azhinov[8] and, in more detail, by Semskow.[10] Detailed studies of a similar disease affecting cattle, sheep, and goats in Palestine were recorded by Bernkopf, Olitzki, and Stuczynski.[1] In the United States, bovine leptospirosis has been reported by Jungherr[4] in Connecticut, Marsh[6] in Montana, and Mathews[7] in Texas.

Mikhin and Azhinov[8] gave the name *Leptospira icterohaemoglobinuriae vitulorum* to the strain isolated in Russia. Bernkopf *et al.*[1] did not name the strain studied in Palestine, but stated that it seemed to be identical with that of Mikhin and Azhinov, although a serologic comparison of the two strains was not reported. Both strains are serologically distinct from *Leptospira icterohaemorrhagiae* and *Leptospira canicola*. Cultural and serologic studies of American strains of Leptospira from cattle have not been reported.

The name *Leptospira mitis* was given by Johnson[3] to a strain isolated from the urine of human cases of leptospirosis in Australia. Eight of the nine persons involved were associated with cattle or pigs and, since the cattle showed agglutinins for *L. mitis*, it was inferred that the human infections were contracted from cattle.

Terskikh[11] and Semskow[10] obtained serologic evidence of human infection with bovine strains of Leptospira in Russia. The occurrence of human infections in Palestine was established by the presence of specific antibodies against the bovine strain of Leptospira in serums from 19 human patients, all of whom belonged to occupational groups having close contact with cattle (Bernkopf *et al.*[1]). These human cases were characterized by severe jaundice with early kidney involvement and high blood urea levels. They were often severe and not infrequently fatal.

From the Department of Veterinary Pathology and Hygiene, College of Veterinary Medicine, and the Agricultural Experiment Station, University of Illinois, Urbana.

Mr. A. K. Sutherland resigned from the University in April, 1948, after this work was completed.

A case of leptospirosis in a cow was diagnosed in Illinois in the summer of 1947. In view of the possible importance of the disease to human health, and since more information on the incidence, distribution, and causative agent of the bovine disease is needed, the case is reported here.

HISTORY

Twenty Hereford cows were brought from Texas to Illinois in August, 1946, and placed in a herd with 13 native animals. The calving season extended from January through May, 1947. Two cows had died before our attention was called to the herd, which was then being kept in an open pasture. One of them had been in poor condition for a long time and died early in July. Late in July, another cow died, and the owner's incomplete observations indicated that she had anemia and dark brown urine. A third cow, observed sick on August 4, was seen by Dr. H. R. Hester who consulted the College of Veterinary Medicine at the University. The cow was examined the following day, immediately before and after death. A fourth cow became acutely sick with fever and anemia a few weeks later. Within six hours of the appearance of symptoms, a single treatment of sulfanilamide and sulfathiazole supplemented with 200,000 units of penicillin was given. She recovered in forty-eight hours.

No abortions and no further cases have been observed in the herd.

SYMPTOMS

The cow which was examined postmortem was a 5-year-old in good flesh. She was dyspneic, and her temperature was 104 F., but she had been prostrate in the sunlight for several hours. The visible mucous membranes were pale and icteric; a blood sample from the jugular vein was watery and brownish. A dried mucoid discharge was present about the nares but there was no inflammation of the muzzle. Defecation was suppressed and the feces were firm and noticeably yellow. The urine was distinctly brown.

POSTMORTEM OBSERVATIONS

The fat and connective tissues were icteric but not markedly so. Centrolobular necrosis was present throughout the liver

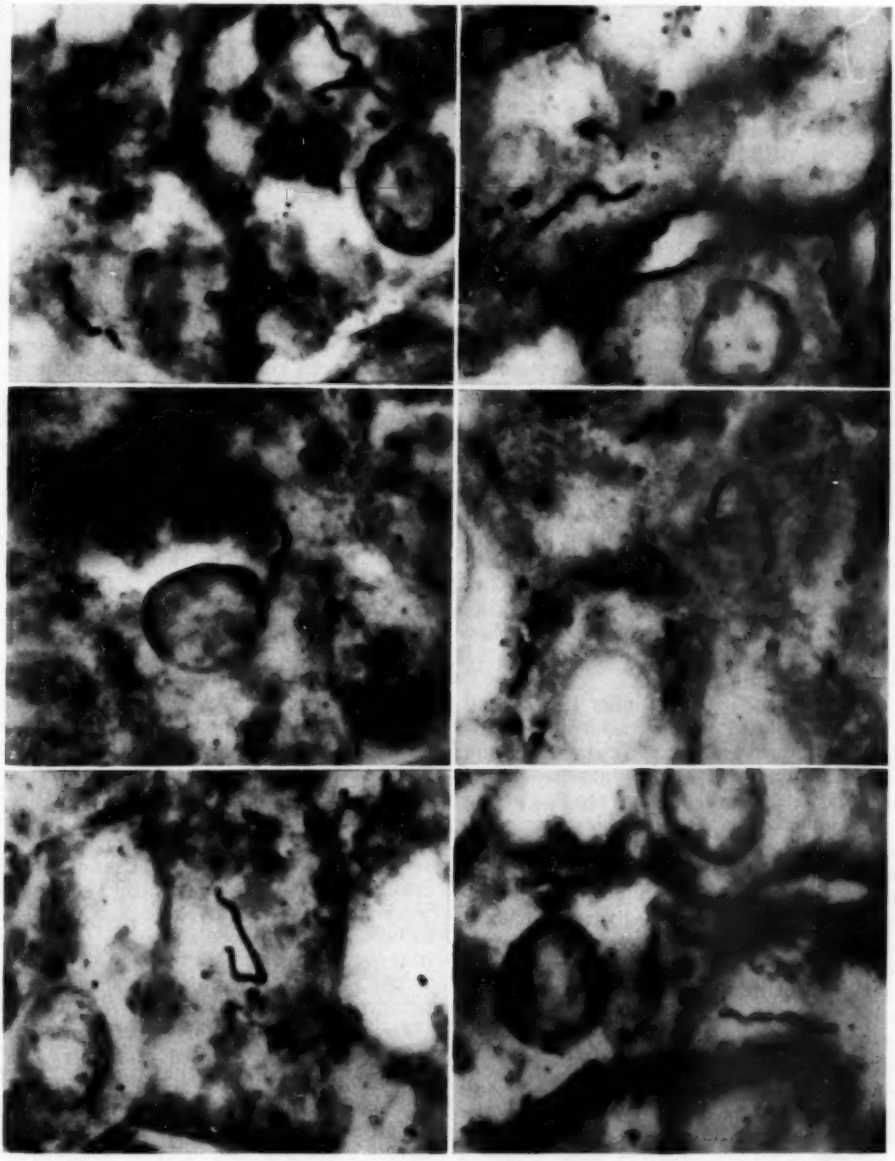

Fig. 1—Leptospira of bovine origin in the liver of the guinea pig. Levaditi technique. 2000 x.

and there were many subcapsular petechiae. The bile was brownish amber and viscid. The kidneys were pale, and there were many subcapsular and cortical lesions resembling petechiae but which, as described by Mathews,[7] were evidently hemoglobin casts. Microscopically, there was marked, diffuse, cloudy swelling with early focal interstitial nephritis. The urine was deep brown. The myocardium lacked tone and there were numerous subepicardial petechiae. No other lesions were noted. The

uterus contained an apparently normal 30-day fetus.

LABORATORY OBSERVATIONS

Giemsa-stained blood smears showed no bacteria or protozoa, and blood agar plates inoculated with liver, kidney, and spleen tissues remained sterile after aërobic incubation at 37.5 C. Since leptospirosis was suspected and culture mediums suitable for the growth of leptospiras were not immediately available, guinea-pig inoculations were used to demonstrate the organisms. Owing to a technical error, Levaditi preparations of the bovine liver and kidneys were unsatisfactory, so that leptospiras were demonstrated in the guinea-pig tissues only.

Since animal inoculations may be a useful aid in diagnosis, the results are given in some detail. Young guinea pigs weighing 150 to 250 Gm. were inoculated intraperitoneally with saline suspensions of liver and kidney. Rectal temperatures were taken daily. (Guinea pigs weighing 100-150 Gm. are desirable for isolating canine strains of Leptospira and it is probable that they are also more susceptible to bovine strains than heavier animals.)

First Passage.—Guinea pigs 1, 2, 3, and 4 were inoculated with a triturated physiologic saline suspension of bovine liver and kidney. Daily rectal temperatures were normal for twenty days. Guinea pig 3, a young female, aborted on the eighth day (temperature 102.6 F.). Levaditi preparations showed leptospiras in the liver (fig. 1) but not in the kidneys. Two guinea pigs inoculated with a composite liver and kidney suspension from No. 3 showed no thermal or other clinical response. No. 1 had shown no illness or temperature reaction but at autopsy twenty days after inoculation, focal necrosis of the liver and nephritis were evident. Leptospiras were not observed in Levaditi preparations of the liver and kidneys although on subinoculation these tissues were infective.

Second Passage.—Guinea pigs 7 and 8 (weighing 150 Gm. each) were inoculated with composite liver and kidney suspension from No. 1. On the seventh day, their temperatures were 104.7 and 105.8 F., and they were sacrificed. Autopsy revealed focal necrosis of the livers. Levaditi preparations revealed leptospiras in the livers but not in the kidneys.

Third Passage.—Pooled liver and kidney tissue from No. 7 and 8 produced no response in 2 more guinea pigs and another subinoculation (fourth passage) was also negative.

The liver and kidney suspension from guinea pigs 7 and 8 was also inoculated into the allantoic cavity of 10, 10-day chicken embryos, but there was no evidence of multiplication when the allantoamnionic fluid was examined by dark-field illumination after six days' incubation at 37.5 C.

A calf, 30 days old, inoculated with this material from guinea pigs 7 and 8, also showed no visible response, but the inoculum had been held thirteen days in the refrigerator before the calf was available.

About four months after the diagnosis was made, blood samples were drawn from each of the 30 adult Hereford animals for serologic study. However, due to the fact that we were unable to obtain satisfactory antigens, the serums were submitted to Dr. R. B. Little.* The results of the tests will be published by him in a forthcoming paper.

DISCUSSION

A diagnosis of leptospirosis in animals may be made (1) by demonstrating the organisms microscopically in blood, urine, or tissues by dark-field examination or in tissues stained by one of the silver impregnation methods; or (2) by artificial cultivation in one of the special mediums. Since both these methods require some special preparation, they are not always readily available for routine diagnostic work. In any case, it appears advisable to include animal inoculation in laboratory diagnostic procedures.

The bovine strains of Leptospira isolated in different regions apparently differ in their pathogenicity for experimental animals. Semskow[10] stated that his strain from cattle (which he named *Leptospira icterohaemoglobinuriae*) was without effect on guinea pigs even after several passages. Mikhin, Azhinov, and Salikov[9] reported that cultures of their bovine strain (*Leptospira icterohaemorrhagiae vitulorum*) were virulent for young white mice and guinea pigs. Bernkopf *et al.*[1] stated that blood or tissues virulent for calves did not produce clinical

*Grateful acknowledgement is accorded Dr. Ralph B. Little, Rockefeller Institute for Medical Research, Princeton, N. J., for conducting these tests.

signs of illness in rabbits, guinea pigs, mice, rats, and hamsters, but that 1 out of 4 of their guinea pigs did show a rise in temperature to 40 C. eight days after inoculation. Mathews[7] obtained a slight response in 2 out of 6 guinea pigs and was able to transmit the disease through three series of guinea pigs, but he was unable to demonstrate leptospiras in the diseased kidneys.

Gray,[2] discussing the diagnosis of canine leptospirosis due to *L. icterohaemorrhagiae*, stated that "morning and evening temperatures of inoculated guinea pigs give an early and often a sole indication of infection, especially with primary inoculation of infected tissues. . . . At times, the peak [temperature] may be missed, as an equally rapid fall occurred in twenty-four hours, often to a subnormal figure more or less coincident with the onset of icterus. . . . Icterus and a significant temperature curve may fail to appear, however, and the organism shown to be virulent only after passage through two or three guinea pigs. Thus, the killing of 1 of a pair of inoculated animals in the febrile stage to obtain material for passage and culture is often justified." These remarks apply especially to leptospirosis in cattle, since leptospiras encountered in cattle have appeared to be less pathogenic for guinea pigs than is *L. icterohaemorrhagiae*. The guinea pig, although useful, apparently is not entirely reliable for bovine cases, since we lost our strain after two passages, in spite of the fact that tissues for subinoculation which failed were collected from infected guinea pigs seven days after inoculation and when they were febrile.

Bovine strains of Leptospira isolated in America have been studied in experimental animals by Mathews,[7] but cultural and serologic studies have not as yet been reported. Human infection from cattle has not yet been reported in this country.

SUMMARY

An acute fatal case of leptospirosis in a cow in Illinois is reported. The disease was characterized by icterus, anemia, and hemoglobinuria. Histopathologic examination revealed centrolobular necrosis of hepatic cells and early interstitial nephritis. Leptospira strains were demonstrated in Levaditi preparations of the livers of guinea pigs inoculated intraperitoneally with liver and kidney tissue from the cow.

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Typhoid Bacillus Not Cow-Borne

Scott and Minett (*J. Hygiene*, abstr. *Vet. Rec.*, June 26, 1948) demonstrated experimentally that the typhoid bacillus does not multiply in cows as some have supposed and that milk-borne typhoid fever is due to extraneous contamination. Cows fed 200 x 10^9 virulent typhoid bacilli orally twice did not excrete them in the milk or feces, and when more than 10^9 such organisms were instilled into the udder, shedding of the bacillus ceased within ten days in 14 out of 16 quarters. In two quarters, excretion continued for twenty-five to twenty-seven days and in another cow for at least eighty-five days. Applied to the teat orifice of 12 cows, if organisms were found at all, it was only for a day.

Bovine epitheliosis is a better descriptive name than malignant catarrhal fever, Goss and coworkers have decided (*Am. J. Path.*, Sept., 1947), because the lesions of this disease involve epithelial structures and the inflammation is primarily of a serous or serocatarrhal type.

Some Infectious Diseases of Domestic Animals in China
V. Dogs and Cats

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IN PREVIOUS papers,* some infectious diseases of animals (cattle, horses, swine, sheep and goats) in China were reported. This paper reports on some infectious diseases in dogs and cats.

Canine Distemper.—Dog distemper is prevalent in all parts of China, affecting young animals 2 or 3 months up to 1 year of age. Native dogs are quite resistant to distemper, and when an animal contracts the disease there are only mild general disturbances, such as moderate increase in temperature, slight depression, and slight inappetance. There may be catarrhal symptoms of the nose and eyes, but they are usually mild. Even without treatment, the animal recovers in about a week.

In recent years, the Chinese have shown a preference for the German Shepherd dog, a breed particularly susceptible to distemper. Almost all puppies contract the disease, and complications, including gastroenteritis, pneumonia, and affection of the central nervous system are common. In spite of treatment, which is usually symptomatic, the animal dies in from seven to fourteen days. I have seen a case of postdistemper encephalitis in a young German Shepherd. The dog contracted distemper and had apparently recovered when it suddenly developed paralysis of the hind quarters which spread forward rapidly. Within twenty-four hours all four limbs were paralyzed. The dog was in such a pathetic condition that the owner insisted on euthanasia.

Rabies.—More than 2,000 years ago, Chinese history recorded the occurrence of rabies in dogs. Fantastic theories of its transmission and the so-called specific cures are still extant among the illiterate people. The disease has been reported from all parts of China, especially in the cities where there are large numbers of homeless dogs. It is most prevalent in the spring and summer and occurs enzoötically. It is universally believed that dogs become rabid during the blossoming of the rape (April and May). The association is only apparent and not real, for during April and May some of the bitches are in heat, and it is common to see 15 or more males follow a single bitch. There is considerable fighting among the males and, if there is an infected animal among them, the disease will surely spread. Although no statistics are available on human infection, which is invariably due to the bites of rabid dogs, the number must be considerable.

Cats are known to contract rabies also, but this is not as common as in dogs.

Dog Typhus.—This disease is rare. The writer has observed only 2 cases during his twenty-five years in various parts of China, both occurring in older dogs (7 to 8 years old). The onset was sudden. The appetite was entirely lost, and there was frequent vomiting and great thirst. The vomitus was tinted with bile and was sometimes brownish red. The animal was extremely depressed and weak, and usually assumed a lying posture or walked with difficulty.

The mucous membranes of the nose, eyes, and buccal cavity were dark red, and the breath was offensive. The temperature was slightly increased, there was little alteration in respiration, and the pulse was rapid and weak. Death occurred usually in two or three days.

Kala-azar (Leishmaniasis) in Dogs.—This disease is confined to certain areas (Peiping, northern Kiangsu, vicinity of Lanchow, etc.) where human kala-azar is prevalent. The relation between human and canine kala-azar is still not definitely established. Some think that the dog is the reservoir because (1) Both microörganisms are morphologically identical. (2) Inoculation of the organisms into susceptible laboratory animals produces the same kind

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*The following articles by Ching-Sheng Lo appeared in the J.A.V.M.A.: Some Infectious Diseases of Domestic Animals in China. I. Cattle. *109*, (Oct., 1947): 272-273; Some Infectious Diseases of Domestic Animals in China. II. Horses. *112*, (June, 1948): 436-437; Some Infectious Diseases of Domestic Animals in China. III. Swine. *113*, (Aug., 1948): 126-127; Some Infectious Diseases of Domestic Animals in China. IV. Sheep and Goats. (Sept., 1948):

of lesions. (3) Serologically they are identical. (4) There is also epidemiological evidence.

The disease is usually chronic and is transmitted by sandflies. Infected animals may live for years but ultimately die from debility and exhaustion. The symptoms consist of unthriftiness, epilation, and seborrhea sicca in the tip of the ears and the trunk. Blephoritis may be present, but it is not constant. In the late stage, the dog is emaciated.

On cursory observation, it may be mistaken for mange or other skin infections. Positive diagnosis consists of finding the Leishman-Donovan bodies. The most reliable and practical method is ilium puncture, but liver puncture, spleen puncture, or skin smear may also be used.

In human beings, kala-azar is successfully treated with neostibosan (intramuscularly) and ureastabamine (intravenously); but in dogs, the result is disappointing. This therapeutic difference has led some to doubt the identity of the disease in man and in the dog.

Transmissible Lymphosarcoma of Dogs.—This disease occurs frequently in purebred animals (Pekingese, Setter, and German Shepherd) but is rarely seen in native dogs (mongrels). Seven cases have been presented for treatment in our clinic during the past ten years. Three occurred in females, and 4 in males. In the females, the tumors are located in the vaginal vault; while in the males, the tumors are embedded in the tissue of the penis and the sheath. The symptoms are well known.

Anthrax and Tetanus.—Anthrax is prevalent in all parts of China. It has been known to occur in horses, cattle, buffaloes, sheep, goats, and swine, but, so far, there has been no report of its occurrence in dogs and cats. We have seen many stray dogs eating the blood and carcasses of cattle dead from acute anthrax, and they seemed to suffer no ill effects. Tetanus is also rare in these animals. Only 1 case of tetanus has been seen in a dog.

Tuberculosis.—There is no question that dogs and cats are susceptible to tuberculosis, but no case report has been recorded in the Chinese veterinary literature.

Feline Infectious Enteritis.—Feline infectious enteritis is common in Chengtu, Szechuen. During a period of eight years, 810 cases were presented for treatment in our clinic. Since then, I have seen cases in Lanchow and Nanking. It seems that the disease is nationwide. It is confined exclusively to kittens from a few weeks to several months old.

The onset was sudden. The first noticeable symptom observed by the owner was decrease or loss of appetite. Vomiting was invariably present (almost 100%), the vomitus being watery and bile-stained. Dehydration was much in evidence, but whenever the animal attempted to drink, it vomited. The pulse was fast and weak; the respiration usually normal, or slightly accelerated. In the beginning, there was always an elevation of temperature (40 to 41 C.), but this gradually declined to normal or subnormal and was usually followed by death.

The diseased kitten was depressed and disinclined to move. At first there was constipation, but diarrhea set in if the animal did not die within forty-eight hours. In the terminal stage, the animal usually lay in a semicomatose condition. Convulsions sometimes preceded death.

The course was short. Some animals died within twenty-four hours, but the majority succumbed in three to four days. The mortality was 100 per cent.

The most conspicuous pathologic change was in the digestive tract. The gastric mucosa was usually congested and covered with a layer of catarrhal exudate. In a few cases, hemorrhage was present. Sometimes the stomach was normal, but the duodenum was congested in its entire length, and hemorrhage was frequently seen. There has been only 1 case that showed necrosis. The jejunum and the ileum sometimes had similar macroscopic changes, but they were milder in character. The large intestines were more or less congested and petechiated. The liver and the spleen were sometimes congested. There were no macroscopic changes in the central nervous and the respiratory systems.

Many drugs, including sulfonamides, have been tried on hundreds of cases, but they did not alleviate the symptoms or modify the course of the disease.

Aujeszky's Disease in a Cat.—There is only 1 case of Aujeszky's disease in a cat, reported by Y. C. Lieou,[1] who wrote: "The brain of a cat which died of an infection re-

[1]Lieou, Y. C.: Aujeszky's disease, the First Case Report in China. Chinese J. of Anim. Husb. and Vet. Med., 6, (1947): 6-7.

sembling rabies was examined. The outstanding symptoms of the cat were sialorrhea, restlessness, and posterior paralysis; but there was no indication of pruritis. Rabbit inoculation in series was positive with characteristic symptoms of pruritis and fatal issue after a short time (twenty-two to twenty-six hours by intracerebral route, and five days by scarification of shaved skin). Bacteriologic examination of a rabbit which died of artificial infection showed no growth in aërobic and anaërobic cultures. A virus being the causative agent was thus evidenced. Using the virus to test for cross immunity with rabies-immune rabbits was negative. These facts allowed the author to make the diagnosis of Aujeszky's disease, discovering its existence in China for the first time."

Dermatitis in a Gilt

This is the story of a hired man who made a mistake. A gilt was approaching farrowing time, so, in keeping with recommended procedure, she was given a bath with a standard brand of mange oil. Shortly afterward, the animal showed evidence of extensive and painful dermatitis. Swelling

Gilt recovering from dermatitis.

and inflammation were pronounced, the skin cracked severely, and large areas of skin peeled off entirely.

Light sensitization was suspected until it was noticed that a gallon can of crude creosote was present in the hog house as well as a similar container of mange oil. Questioning revealed that the creosote had been used full strength on the gilt instead of the intended mange oil.

The accompanying photograph was taken three weeks after the accident and shows the gilt well on the road to recovery. The results might well have been different if all the swine had been treated instead of the single animal.

Moral: Keep dangerous products locked up or entirely away from harmless ones for which they may be mistaken in a careless moment.—*J. W. Bailey, D.V.M., Ft. Atkinson, Wis.*

Treatment of Gapes (=Syngamus Trachealis Infection)

Colback and Cornet* treated successfully 95 per cent of chicks infected with gapeworms *(Syngamus trachealis)* by insufflating the trachea with finely powdered pyrethrum. An assistant opens the beak while a fine rubber cannula is passed delicately through the larynx into the trachea. With an attached vaporizer, one or two puffs completes the operation, which was repeated on two or three consecutive days and again later if necessary in the uncured cases.—**Rev. d'élevage et de Méd. Vét. des Pays Trop. Abstr. Rev. Vét., April, 1948.*

Colloidal Iodine in Demodectic Mange

Four years of experience with various treatments for demodectic mange in dogs has proved the relative superiority of colloidal iodine in oil, reports Watson of England *(Vet. Rec.,* July 17, 1948). Records showed that recovery was more certain and regrowth of hair was better stimulated with this treatment than with organic sulfur compounds, arsenicals, or benzene hexachloride (externally and internally). Cures without recurrence were effected in 22 out of 28 new cases treated with the iodine preparation; similarly, "clinical cures" resulted under this treatment in 24 out of 25 cases which did not respond to other drugs.

The suggested therapeutic routine is to rub the iodine-in-oil well into the skin about every fourth day. About five or six applications should be sufficient, judging from the author's experience.

A course on ethics should be given at each veterinary college. It is much easier to teach a student ethics than to change his bad ethics after he has left school.—*Dr. A. L. Kassirer, Canad. J. Comp. Med., June, 1948.*

NUTRITION

Tryptophan in Digestive Disturbances in Swine

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THE IMPORTANCE of nutrition in the control and treatment of digestive disturbances in swine has been acknowledged by many veterinarians. Hofferd,[1] Bryant,[2] and Wilson[3] have stressed the value of certain rations in the treatment of necrotic enteritis or infectious enteritis in swine. Steenerson[4] was even more optimistic with regard to the influence of feeding and stated that "practical experience and observation would indicate that 85 per cent or more of the enteric diseases of swine cannot only be prevented but can be relieved by proper feeding and management."

TABLE 1—Experiment 1. Ration Composition

Ingredients	Lot No. 1	2	3	4	5
Corn	91.25	79.50	80.50	80.50	....
Tankage	7.25	9.50	9.00	9.00	4.00
Soybean oil meal	...	4.75	....	....	2.00
Alfalfa	...	4.75	4.50	4.50	2.00
Yeast	...	....	4.50	....	....
Skimmilk (dried)	...	....	....	4.50	....
Wheat	...	....	....	....	60.5
Oats	...	....	....	....	30.0
Ground limestone	1.0	1.0	1.0	1.0	1.0
Salt	0.5	0.5	0.5	0.5	0.5

The usual recommendation is to change rations with a high corn content to one consisting of bulkier feeds, such as wheat or oats, as an aid in treatment of this condition. The exact basis for such recommendations is not given and the results of controlled experiments are not known. Until more specific information is available, such generalizations lose much of their possible value.

These experiments were designed to determine the relationship between nutrition and enteritis in swine. The experimental pigs used in the study were from the University of Wisconsin swine herd. They were affected with the residual or chronic symptoms of the gastroenteritis in swine which Whitehair *et al.*[5] believed was due to an infectious agent other than bacteria. The detailed symptoms and lesions were given in this publication.

EXPERIMENT 1

The first experiment was designed primarily to study the effect of adding certain practical supplements to a rather poor ration—yet used by many farmers. The basal ration consisted of ground yellow corn and tankage with a calculated digestible protein content of 10.5 per cent. This ration was compared with four other rations, three of which were supplemented with various combinations of ground alfalfa, soybean oil meal, yeast, and dried skimmilk. In the fifth ration, wheat, two parts, and oats, one part, replaced the corn. The latter four rations all contained a calculated digestible protein content of 13.0 per cent. The exact composition of the rations fed to each lot is given in table 1.

TABLE 2—Experiment 2. Niacin Blood Values. Average in Each Lot (μg./cc. of Whole Blood)

Lot	Pigs (No.)	1/13/47	2/7/47	2/24/47
1. Basal (control)	4	3.92	3.97	5.37
2. Basal+tryptophan	5	4.48	4.48	4.92
3. Basal+tryptophan and lysine	5	4.44	4.34	4.03
4. Basal+2% salts	4	4.60	4.28	3.87
5. Oats and wheat	4	4.47	5.12	4.35
Average		4.39		

Thirty pigs, all approximately 12 weeks of age and having chronic symptoms of a digestive

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From departments of Animal Husbandry, Biochemistry, and Veterinary Science (Whitehair, Grummer, Spitzer, Bohstedt, Phillips). Dr. Whitehair is now on the faculty of Oklahoma A. & M. College, and Dr. Spitzer is with Murphy Products Co., Burlington, Wis.

disturbance, were removed from the herd and divided equally into five lots according to clinical condition, weight, sex, and age. The pigs all had been affected with a digestive disturbance at 4 to 7 weeks of age and were left in an unthrifty and "runty" condition.

Results.—At the end of the first week on experiment, the pigs in lot 5 (wheat + oats) were obviously much better. Not only had the symptoms of diarrhea subsided but they were also more vigorous and had a smooth skin and coat. The average growth rate of each lot for the first eight weeks of experiment is given in figure 1. The initial average weight of the pigs at this age was somewhat indicative of their clinical condition.

One pig in lot 1 died while on experiment. The pigs in lot 1 looked no worse at any time than those in lots 2, 3, or 4 which received a higher protein content. The average growth rate of lots 2, 3, and 4 was very close throughout the experiment. In addition to increased growth rate in lot 5, there was also a marked improvement in the clinical condition of the pigs.

EXPERIMENT 2

This experiment was designed as a partial repetition of experiment 1 and also to ascertain what factors might be present in oats and wheat that would have a growth-promoting effect on pigs left runty and unthrifty after the disturbance. The corn basal ration in lots 1, 2, 3, and 4 contained 12.8 per cent digestible protein and had a nutritive ratio of 1:5.2. The oats-wheat ration contained 12.1 per cent protein and had a nutritive ratio of 1:5.1. The basal ration in lot 4 was supplemented with a 2 per cent level of the following salt mixture:

4,800 Gm. $CaCO_3$
7,840 Gm. NaCl
992 Gm. $CaHPO_4$
1,632 Gm. $MgSO_4.7H_2O$
440 Gm. $Fe(C_6H_7O_7)_2.6H_2O$
12.8 Gm. KI
80 Gm. $MnSO_4.4H_2O$
4 Gm. ZnCl
4.8 Gm. $CuSO_4.5H_2O$
3.2 Gm. $CoCl_2.6H_2O$.

This salt mixture was made especially high in sodium salt (NaCl) to determine whether it was of any value when given over a long period, or would only relieve dehydration during the time of severe diarrhea. Sodium chloride, as well as some of these other salts, has been recommended occasionally in the field as an aid in treatment of these chronically ill pigs.

The two amino acids, DL-tryptophan and L-lysine, were added because corn is low in these substances. They were added on the basis of the rat's requirement of 0.2 per cent tryptophan and 1 per cent lysine in the ration. The amount supplemented plus that in the ration would meet the needs of any critical deficiency of these factors. The composition of the ration is given in figure 2. Forty pigs having symptoms of chronic diarrhea, emaciation, rough hair, and poor growth rate were separated from the herd and divided equally into four lots as in experiment 1. Lot 2 was redivided into two lots (2 and 3) thus making a total of five lots. The pigs used in this experiment were heavier and older than those used in experiment 1. The lot averages were between 36 and 39 lb. The average age was approximately 14 weeks, which indicates the poor growth rate until the time the experiment commenced. The pigs used in the experiment were also more severely affected with the residual symptoms of the disorder. Blood samples were obtained for tryptophan and niacin analysis, according to the technique of Carle and Dewhirst,[6] at the beginning, middle, and end of the experiment. Samples were collected from all the pigs in lots 2 and 3 and from 4 average pigs in lots 1, 4, and 5. The blood was frozen immediately at 10 to 15 F. and analyzed at the end of the experiment. Niacin determinations on the whole blood were made according to the method described by Strong.[7] Free tryptophan was determined on the blood plasma (unhydrolyzed) by the method described by Henderson and Snell.[8]*

TABLE 3—Experiment 2. Tryptophan Plasma Values. Average in Each Lot (μg./cc. of Blood Plasma)

Lot	Pigs (No.)	1/13/47	2/7/47	2/24/47
1. Basal (control)	4	7.64	7.98	4.55
2. Basal+tryptophan	5	8.04	10.37	11.29
3. Basal+tryptophan and lysine	5	7.66	11.75	12.81
4. Basal+2% salts	4	6.49	6.93	7.82
5. Oats and wheat	4	9.42	12.38	12.31
Average		7.94		

Results.—The average daily gain in each lot for the forty-two day experimental period is given in figure 2. The basal ration gave poor growth and was not improved much by the addition of a complete mineral mixture. The marked growth rate of the oats-wheat basal ration in comparison with the corn basal confirms the results obtained in experiment 1. Supplements of tryptophan alone and a combination of tryptophan and lysine to the corn basal ration gave a marked growth response. The growth rate when a combination of both amino acids was used, was almost equal to the oats-wheat basal ration.

The average niacin blood levels in each lot are given in table 2. No marked variations are noted between any of the lots.

*Grateful acknowledgment is made to Dr. L. M. Henderson and Mr. Paul Schurr for tryptophan analysis.

Table 3 gives the average plasma tryptophan values in each lot. Not only are differences noted between the lots but there were also differences within the lots. That is, individual pigs having the best gains also had the highest tryptophan values and, conversely, those with low tryptophan values had a low average daily gain. At the beginning of the experiment, an average of 7.94 μg. tryptophan was found per cubic centimeter of blood plasma. The pigs in lot 4 showed a slightly lower level while the pigs in lot 5 showed a slightly higher level. There was also variation within individual lots. As the experiment progressed, there was a pronounced increase in plasma tryptophan levels in lot 2 (basal + tryptophan), lot 3 (basal + tryptophan + lysine), and in lot 5 (oats and wheat). The levels in other lots either decreased, remained the same, or increased only slightly.

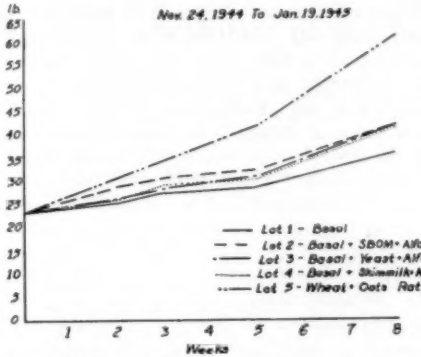

Fig. 1—Experiment 1, showing growth curve of pigs with chronic digestive disturbance on various rations.

DISCUSSION

Experiment 1 confirms the recommendations as to the value of the wheat-oats ration as an aid in the treatment of one type of enteritis in pigs in comparison to a ration containing corn as the basal ingredient. The supplements employed in lots 2, 3, and 4 are not only a good source of the B-complex vitamins but also furnish a fairly complete protein.

Experiment 2 indicates that at least part of the growth-promoting ability of an oats-wheat ration in comparison with corn for pigs with chronic enteritis was due to the greater amounts of tryptophan and lysine. The addition of a complete mineral mixture, especially high in sodium chloride, gave only slightly improved growth rates over the control pigs. The 2 smallest pigs in lot 4 died early in the experiment which probably accounts for a better growth rate than lot 1. The niacin blood values remained rather constant regardless of the dietary treatment or clinical condition of the pigs and confirms a previous publication by Grummer *et al.*[9]

Hastings[10] and Hawthorne[11] have reported the value of niacin in the field treatment of enteritis of swine.

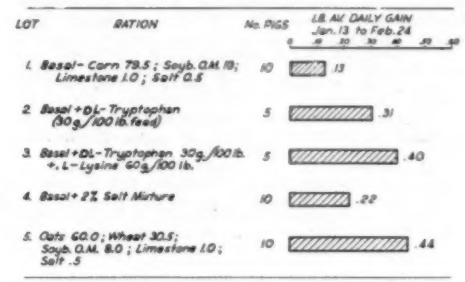

Fig. 2—Experiment 2, showing average daily gain of pigs with chronic digestive disturbance on a wheat-oats ration compared with ration of corn and supplements.

We have been unable to obtain a clinical response using niacin in the treatment of the enteric infection observed in this herd. It is recognized, however, that enteric infections in swine can be due to many causes. The type of infection here reported appears clinically similar to the description of infectious enteritis or "necro," yet we have been unable to isolate any of the microörganisms believed to have etiological significance in this disease. Further data[12] from this station indicate that dietary treatment has no effect on the prevention or onset of this disease.

CONCLUSIONS

Wheat or oats as the basal ingredient of a ration were of marked value in the treatment of pigs having chronic symptoms of gastroenteritis. The effect was shown to be at least partly due to the lack of the amino acids, lysine and tryptophan, in the basal ration. Free tryptophan plasma values were increased when the basal ration was supplemented with DL-tryptophan. The plasma tryptophan values of pigs on an oats-wheat ration were about the same as those on the basal ration supplemented with tryptophan.

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Vitamin E—Wheat Germ Oil

The physiological action of vitamin E prescribed as such or in the form of wheat germ oil has been the subject of endless controversies for twenty-five or more years; in fact since Mattill and Conklin (*J. Biol. Chem. 44*, 1920: 137) discovered its remarkable effect on the reproductivity of laboratory rats in their studies of dietary deficiencies brought about by feeding purified diets. Female rats made sterile on dried milk diet, promptly reproduced when a bit of wheat germ was added to the purified food. That result promptly—too promptly—added a new drug to the pharmacy. Soon it won the distinction of being named the *fertility vitamin*, or the *vitamin of reproduction*. Veterinarians of the dairy cattle field will recall (and may still see occasionally) the bottle of wheat germ oil in the medicine chest of the dairy farmers. In many a dairy herd of the upper rank, wheat germ oil replaced the classical treatment of bovine sterility. The herdsmen were being assured that they could do to cows what the laboratorian was able to do to his female rats. But, like all overtouted remedies, "humpty-dumpty had a great fall." Curing cystic ovaries, recalcitrant yellow bodies, and/or endometritis was too much of a chore for the cytophylactic dynamics of vitamin E. Moreover, while early research demonstrated that vitamin E is essential to the development of the embryo's envelopes as far back as the earliest phase of nidation, the "wonder drug" was quite as quickly shown to have no effect whatsoever on such necessary factors of reproduction as estrus, libido, ovulation, fertilization of the ovum. Thus it was removed from the false position it had achieved by too ambitious advertising.

Twenty-five years of trial and error with wheat germ oil is a lesson on new drugs that come whirling into the drug market only half tried and misused, and yet have great merit in professional hands. Such is the case of vitamin E, wheat germ oil, and the tocopherols which are being given a new and exact place in clinical medicine, mainly as stimulants of nonstriated muscle tissue of the newborn weakened by vitamin E deficiency of the dam. Anderson, Elvehjem, and Gonce (*North Am. Vet., 21*, 1940: 364) demonstrated amyotrophia in pups born of vitamin E deficient bitches, and Lesbouyries and Charton (*Rec. d. Méd. Vét., 123*, 1947: 481) saw the death of chicken embryos in vitamin E deficient eggs. Kaay (*Tijdschr. Diergeneesk., 72*, 1947: 541) observed that the blood of cows and mares had inconstant vitamin E values corresponding to the quality of the forage consumed, and that this was reflected in their young.

It has long been admitted that vitamin E participates in a large way in the metabolism of muscle tissue. Dam, of vitamin K fame, recognized the influence of vitamin E in the study of bleeding diatheses and its relation to exudative phenomena (nonstriated muscle relaxation) in chicks along with softening of the brain and associated paralytic states. Willman at Cornell University and Vawter of the University of Nevada have shown that adequate amounts of vitamin E prevent and even correct muscular dystrophy (white muscle disease) in calves and lambs.

But what is particularly significant at the moment in clinical veterinary medicine is the likelihood of coexisting vitamin A and vitamin E deficiency in badly winter-fed cows. Both of these factors may be lacking in brown roughage to manifest itself clinically at springtime calving. In fact, the phylactic action of A and E in warding off somatic disaster in offspring and dam, pointed out in current literary literature, was the reason for writing a favorable word for the once dethroned vitamin E. It obviously has an important place in the veterinary clinic.

EDITORIAL

Activities of the National Research Council

At the recent annual meeting of the Division of Biology and Agriculture of the National Research Council, it was suggested that each representative of the various associations and societies acquaint his organization with the activities of the Council in order that greater use of its many functions might be stimulated. Therefore, Dr. E. P. Johnson, Virginia Polytechnic Institute, who is the AVMA representative to the Division of Biology, N.R.C., prepared this report as a guest editorial, since the activities of the Council should be of interest to AVMA members.—THE EDITORS.

The National Research Council was established in 1916 by the National Academy of Sciences. It is a coöperative organization of some 200 members who are appointed representatives of scientific and professional societies, research organizations, and governmental scientific bureaus.

VETERINARY PROBLEMS STUDIED

Through the Council, and particularly through the Agricultural Board of the Division of Biology and Agriculture, problems of animal health have been studied. For example, there is a committee on Veterinary Services for Farm Animals. Dr. R. C. Newton, of Swift & Company, is chairman, and there are ten additional members of whom six are veterinarians, namely: Drs. W. A Hagan, J. G. Hardenbergh, G. H. Hart, R. A. Kelser, J. R. Mohler, and B. T. Simms.

This group, in turn, has a number of subcommittees, each of which has a specific problem to study: Livestock Loss Survey, Economics of Morbidity, Laws and Regulations for Animal Health, Extension Veterinary Service, and Training of Veterinarians, are the problems specifically named. The latter committee, of which Dr. W. R. Krill is chairman, has two subcommittees. One is studying the problem of training veterinarians of states without veterinary colleges. The other is making a survey of the needs for veterinarians with specialized training to serve in research and teaching positions, and the needs for fellowships and other opportunities for producing such specially trained men.

Each of these committees has reported back to the parent group, and the suggestions offered will be implemented as funds become available. The results promise to be favorable and far-reaching.

RELATED SCIENTIFIC ACTIVITIES

Through the Council, the scientists of the country have a unique opportunity to relate their activities to the social sciences, to the humanities, and to education in general. This is, in large part, the result of the association conference boards of the Research Council, which comprise the American Council on Education, the American Council of Learned Societies, and the Social Sciences Research Council. Through the periodic meetings of the representatives of these four councils, including the National Research Council, there is a great deal of common activity now going forward. The operation of the Fulbright Act has been entrusted to the representatives of these four councils.

There is at present a study going forward of the whole broad problem of specialized manpower, of its availability, its utilization and of its training. This is being supported in its preliminary phases by the Rockefeller Foundation, which has recognized that the availability and utilization of specialized manpower is not in all respects unique to the sciences, but is in many respects common to the social sciences and to the humanities as well.

Through the National Research Council, the various scientific societies of the country are also able to integrate their activities without regard to narrow fields of specialization. In order to fully accomplish this, there must be close relationship between the Council and the constituent scientific societies. Recently, in the field of the biological sciences, at the request of

the constituent societies of the Division of Biology and Agriculture, there has been created within the framework of this Division the American Institute of Biological Sciences for the effectuation of the purposes of the several biological sciences within the Division.

JOINT FELLOWSHIPS

Joint fellowships were made possible in the social sciences and in the natural sciences through the grant from the Carnegie Corporation of New York. Under this initial grant, fellowships are being established for the advanced training in the social sciences of individuals who already have a doctorate in one of the related natural sciences, or the advanced training in the natural sciences of individuals who already have a degree in one of the related social sciences.

GOVERNMENTAL AGENCIES AND SCIENTISTS

Governmental agencies frequently seek the advice and coöperation of the scientists of the country, and there has developed the feeling that the Council is the natural agency through which such advice can be secured. Thus, one of the important functions of the Council would be to participate in the development of sciences in the solution of public problems.

Through the Council, scientists frequently have an opportunity to influence government along the right paths. Examples of this sort of coöperative effort are found in the work of the Committee on Artificial Limbs created by the OSRD and taken over by the Academy and the Council; the Committee on Sensory Devices, which has also been advisory to the War Department; the Committee on Quartermaster Problems, which is advising the Quartermaster General with regard to the placement and execution of many research projects; the various medical advisory committees to the Surgeons General and to the Veterans Administration; the Chemical-Biological Coördination Center, which is arranging for the procurement of all new chemical compounds which are developed, and for their testing, so that the combination of information with regard to the physical and chemical structure and biological action can be tabulated and made available for various governmental agencies, and, characteristically, not only for the use of individuals in government agencies but also for private scientists in whatever field of activity they may be concerned. The recently constituted Pacific Science Board, which grew out of the Pacific Science Conference, was created to give stimulus and assistance to research of all types in the Pacific area.

During the past summer, more than forty anthropologists, representing a score of universtities, were studying various aspects of anthropology in the islands and Micronesia. This was one of the largest anthropological investigations ever undertaken. Moreover, the Atomic Energy Commission has utilized the activities and facilities of the National Research Council for the study of the human and biological effects of the atomic energy explosions in Japan.

ATOMIC ENERGY FELLOWSHIPS

Recently in operation are a series of five new fellowship boards to advise and to administer the new Atomic Energy Commission fellowships: one for pre-doctoral fellowships in the physical sciences, one for post-doctoral fellowships in the biological sciences, one each for pre-and for post-doctoral fellowships in biology and agriculture, and one for post-doctoral fellowships in the field of medicine. These pre-doctoral fellowships in biology and agriculture as well as the post-doctoral fellowships in the field of medicine should be of interest to young veterinary graduates who wish to enter research careers. The Atomic Energy Committee has referred this fellowship program, which is perhaps the largest fellowship program in the history of the country ($2½ million will be available this next year), for direction and the establishment of proper relationships to universities and to the scientists of the country themselves. The operation and the policy determination of this program of fellowships will be under the control of these scientists. Interested individuals should contact some member of the fellowship boards mentioned above. Specific information may be obtained through the National Research Council.

In the past, most of these fellowships have gone to students in other fields, particularly medicine. It is felt that this is due not so much to better qualifications of medical students but more because of their

desire and willingness to prepare for these and seek them. At no time in history has there been a greater need for veterinarians with advanced training to fill the openings in teaching and research. Students in veterinary medicine are required to have six years of college training and in many schools these students are taught by men who have had less academic training than the boys they are trying to instruct. Likewise, there is great need for men with advanced training to direct veterinary research and guide the work of graduate students in animal disease research. The fellowships mentioned herein should be made use of to help meet this need.

CIVIL AND MILITARY SCIENTISTS' COÖPERATION DESIRED

Finally, the Council desires close coöperation between civilian scientists and the scientific activities of the armed forces. It wishes to do everything possible to assist the Research and Development Board, the Office of Naval Research, and other agencies in regard to activities in which they need assistance which the Council can give. Examples of this are: the Undersea Warfare Committee and the Committee on Aviation Psychology. Through the activities of the former, the Council has been able to coöperate in the most intimate fashion with the Office of Naval Research. The Committee on Aviation Psychology has been expanded during the past year for advisory services to the Civil Aeronautics Authority and renders service to the Army and Navy with regard to various psychological aspects of aviation.

E. P. JOHNSON.

Anonymous Letters Fail in Their Purpose

The receipt, recently, of an anomymous letter apparently written by a well-informed veterinarian calls for repetition of the notice published a few years ago in the JOURNAL, namely, that anonymous letters to the JOURNAL or the Association, of whatever nature or purpose, receive no consideration but are promptly consigned to the waste basket. In the present case, the letter was well written, the point discussed was well taken, and the writer wanted it referred to one of the Associations' committees. Obviously, if a correspondent does not have sufficient courage of conviction to sign his name, his communication cannot be taken seriously.

Homemakers Speed Brucellosis Eradication

Food and health for the family are problems which fall to the homemaker. Every good salesman and advertising man knows that the only way to gain acceptance of a new food or an improved procedure in protecting family health is to enlist the interest and help of "the ladies."

Brucellosis affects both the food budget and the health of the farm family, and so it comes as somewhat of a shock to realize that the persons responsible for brucellosis eradication have been so tardy in recognizing and adopting what salesmen and advertisers have known and used for many years. It remained for the rural homemakers themselves to appreciate these facts and to request information and guidance from veterinarians.

Alert farm women in 24 counties of Indiana asked their home economics extension leaders to give them more information about the diseases which may be carried by milk, and the methods by which human sickness might be prevented. The request was carried to the Purdue extension nutrition specialist, who enlisted the coöperation of the veterinary science department.

All-day meetings were arranged, a whole series of them for the 24 counties making the original request and for others as well. At these meetings, the local home-economics club leaders were instructed and then each leader carried the information back to the respective community club which she represented.

Veterinarians addressed the meetings of club leaders, presenting the facts about brucellosis. They explained how the disease may be carried from animals to man not only in the milk but also by direct contact. And they didn't stop there. They told about the effects of the disease upon the cows and the pigs, and consequently its influence upon the efficiency of production of milk, beef, and pork. It was soon evident that the homemakers appreciated the impact of brucellosis not only on the food which they were getting directly from their own livestock, but also upon the income and their ability to provide other necessities, com-

forts, conveniences, and even a few luxuries for their families.

The net result is that these farm women are learning to use the small-size family pasteurizer to protect the milk they use at home, but they are also backing the brucellosis eradication program. They have learned that diseased livestock is not a source of profit, and are urging that the diseased animals be replaced by healthy ones.

Other states may have used this approach before Indiana, or they may have adopted the plan from the Hoosiers. If so, such instances have not come to our attention.

Enlisting the coöperation of the rural homemaker can affect the brucellosis control program in only one direction—by speeding the date of final eradication. Such coöperation can be gained by pointing out the dual effect of brucellosis on the farm family—by endangering the health of its members, and by jeopardizing the income from which the necessities and conveniences are provided.

Every veterinarian engaged in country practice can render an additional service to his community by directing attention to this educational program. He can do this by meeting personally with groups of women from the rural areas, or by enlisting the help of the extension veterinarian in his state.

Prudence Island Proposal Stirs Objections

The U.S. Bureau of Animal Industry is still considering Prudence Island in Narragansett Bay, R. I., as a possible site for its foot-and-mouth disease research laboratory, but local opposition to the proposal may force the Bureau to set up elsewhere.

Hearing from unofficial sources that planning for the laboratory is temporarily stymied, the JOURNAL asked BAI Chief Simms for the facts—and here they are:

Rhode Island legislative representatives have expressed tentative approval of Prudence Island as the research site, but some local interests are objecting. Actually, this is only one of several locations regarded as potentially favorable. If constructed on United States soil, the laboratory must be on a coastal island separated from the mainland by deep, navigable water, with no tunnel connections with the mainland.

Add to the indecision regarding location the fact that Congress has not yet appropriated funds for the project, and it becomes apparent that action will be delayed at least until January, 1949, when Congress reconvenes.

The Fiscal Side of Animal Tuberculosis

The money bestowed upon the national wealth, and to the livestock farmers in particular, by the control of tuberculosis in domestic animals can never be put into dollars-and-cents. The fiscal benefits derived are too closely woven into human affairs to separate and add up. The arithmetic would involve the difference between a healthy and a disease-laden livestock holding valued at close to $9 billion, nearly a quarter of a century of regimented science on more than 5 million farms and ranches, a "test-and-slaughter" program of almost forty years, the postmortem examination of more than 320 million cattle and three times that many hogs by BAI veterinarians at the large abattoirs in the last twenty years, and the ill health prevented in man by the removal of unfit food from the market in the form of carcasses condemned outright and the poundage of carcasses retained, both of which were gradually reduced to a remarkable minimum through the years of systematic control. In 1917, 2.1 per cent of cattle carcasses were condemned, or retained, for further examination. By 1947, only 0.0067 per cent were condemned outright as compared with 0.53 per cent in 1917, according to published reports. Needless to say how futile it is to affix dollar values to these items. Fiscal statistics on the diseases of farm animals can depict but a small portion of the benefits derived from a vigorous animal industry. Better than rows of figures to use as arguments is to claim offhand that in the mastery of animal tuberculosis and other plagues, like in the locks of Samson, lies the strength of the U.S.A. as of this hour.

I would not attempt a livestock management program without calling in all the veterinarians of my county. I solicit the coöperation of the federal and state veterinarians just as much as the local practitioners.—*H. M. Nichols, county agent, in Better Farming Methods, Apr., 1948.*

CURRENT LITERATURE

ABSTRACTS

Penicillin in Mastitis

In general, the streptococci and staphylococci which produce bovine mastitis are readily inhibited by penicillin. Of 236 cultures of such organisms studied, only 16 continued to grow in the presence of 0.125 O. U. of penicillin. More than 100 times this amount was needed to kill some staphylococci, however. It would appear, therefore, that the bactericidal sensitivity of an organism is a better index for predicting successful treatment with penicillin than is the inhibitory sensitivity.—[*R. Allen Packer: Penicillin Therapy in Chronic Bovine Mastitis. I. Sensitivity of Bovine Mastitis Organisms to the Action of Penicillin. Am. J. Vet. Res., 9, (April, 1848): 140-143.*]

Vaginal Massage

A device for applying ointment to the vaginal mucosa of cows, and for massaging as the ointment is applied, is described. It consists of two tubes, one inside the other, and a flexible rubber tip which can be expanded to make a ball of appropriate size for each case. This ball rotates, and as it does so it carries ointment to all parts of the vagina and massages the membranes uniformly and without damage.—[*Nuovo Spargipomata e Massagiatore Vaginale a Palla Espanibile e Girevole. By Tristano Dello Jojo. Italian, English summary. Zoötechnia e Veterinaria—La Fecondazione Artificiale., 1, (March-April, 1946):1-4.*]

Equine Joints

In a previous paper, the author presented evidence that the horse resisted infection of joint wounds better if, after appropriate surgical treatment, the joint capsule could be closed by primary suture. This led to the present study of joint structure.

Joints were examined from 50 horses which had died after long hospitalization for diseases which prevented exercise. Ninety per cent exhibited defects of the articular cartilages, usually in the tibiotarsal joint. Histologically there was disintegration of cartilage, exposure of the bone, and focal osteoporosis with destruction of the cortex and trabeculae of the epiphysis. There was no inflammatory reaction. The same condition was observed in the tibiotarsal joints of cattle after long rail transportation. No such defects were seen in foals. In normal working horses, there were breaks in the surface layer of cartilage, but no exposure of bone. The author suggests that the nutrition of the articular cartilages is dependent upon alternate compression and expansion with absorption of fluid, which occurs in exercise.

Histologically, the surface of the synovial membrane lining the joint cavity was covered by an amorphous film of colloidal substance, 6 to 8 μ thick. This "chondroid membrane" was continuous with the articular cartilages at their margins, forming an uninterrupted barrier between the joint cavity and the lymph spaces of the capsular and periarticular tissues. The zone of junction of capsule and cartilage is described.

The synovial fluid of normal working horses was evenly distributed over the articular surfaces. It was viscous, tenacious, and adhesive. It became gelatinous in two to three hours after removal.

The synovial fluid of horses stabled without exercise was more mobile, less adhesive. When the joint was punctured, the fluid flowed out of the needle spontaneously. The quantity of mucin was less and the fluid had more of the characteristics of an ordinary transudate.

The fluid was centrifuged and the residue examined microscopically. In the fluid from healthy horses were lymphocytes, monocytes, hostiocytes, and epithelioid cells of the synovial membrane. Some of the latter were similar to histiocytes. There were no cartilage cells.

The fluid from septicemic horses contained many desquamated mesothelial cells, many blood and tissue histiocytes, monocytes, small lymphocytes, large lymphocytes, and plasma cells. There were no cartilage cells. Many of the cells of blood origin were degenerate. The lymphoid reaction in the joints was associated with neutrophilia in the blood.

The blood supply of the normal articular tissues is described in relation to their capacity for inflammatory reaction. In the surface layers of the synovial membrane, directly under the chondroid film, the capillaries formed thin-walled, closed loops comparable to renal glomerull.—[*P. P. Andreyev: On the Structure of the Joints of Horses. Veterinariya, 25, (Feb., 1948): 20-25.*]—R.E.H.

Copper Poisoning in Sheep

Three instances of chronic copper poisoning with fatalities in sheep are described. These occurred following prolonged access to salt containing about 10 per cent copper sulfate. An-

other outbreak, with occasional losses, occurred on a farm near a copper mine. The lesions consist of edema, hemoglobinuria, hematuria, icterus, and degenerative changes in the liver and spleen. In 1 fatal case, there was 1.1 mg. of copper per 100 cc. of urine, and 950 parts per million of dry tissue in the liver. One case, illustrated by a photograph, developed necrosis of the skin about the face and ears after exposure to sunlight for several days. A number of cases occurred on a farm where copper sulfate had been given at the rate of about 1 Gm. per day per sheep for about one hundred days. The literature on copper poisoning in animals is reviewed.—[*G. Naerland: Copper Poisoning in Sheep. Norsk Vet.—tidsskr., 60, (May, 1948): 161-185.*]—A.G.K.

Suturing with Sewing Machine Needle and Syringe

The author describes a method of suturing which he calls the "Singer Method" and which is a combination of two previously described methods. The instruments necessary are an ordinary syringe, sewing machine needle such as is used by bootmakers, and a special adapter for connecting the needle to the syringe and leading the suture material from the barrel of the syringe to the needle.

The suturing is done by perforating the tissue at the border of the incision or wound with the needle, then grasping the suture when it emerges from the tissue. The needle is then withdrawn and inserted at a new point.

The method permits the sutures to remain sterile, it allows for variation in size and type of suture material, and it enables the surgeon to tie the knot best suited to the tissues involved.—[*B. O. Engdahl. On Suturering med Symaskinsnaal och Spruta. Skand. Vet.—Tidsskr., 37, (1947):691-695.*]—J. Egehøj.

Bovine Tuberculosis in Germany

Bovine tuberculosis has been widespread in Germany and other European countries for many years. Older statistics were based on the amount of "open" infection rather than on the number reacting to the tuberculin test. An open case is defined under the law as an animal having infection of the lungs, intestines, uterus, or udder.

It is conservatively estimated that at least one-third of all the cattle of Germany are infected with tuberculosis. In the Saar area, 6.2 per cent of meat and viscera from cattle were condemned as unfit for human use. In Baden, 15.2 per cent condemnations were made for the same reason. In the Saar region, it is estimated that 30 to 40 per cent of the tuberculosis in children under 5 years of age is of bovine origin.

German veterinarians, officials, and tuberculosis experts agree that a comprehensive control plan is needed, and that it should provide: a long period of control because of the heavy rate of infection; coöperation among all parties concerned; a compulsory clause so that it will be carried out uniformly in all areas; technical administration by veterinary officers with field assistance of veterinary practitioners; determination of infection by physical examination; laboratory and tuberculin tests; separation of diseased from healthy animals; indemnity payments for slaughtered animals; premium payments for milk and meat from tuberculosis-free herds; improved stable construction and hygiene; and pasteurization of all milk to protect human health.—[*Bovine Tuberculosis in Germany. By Major Phillip R. Carter, V.C. Med. Bull. Office of Theater Chief Surgeon, ET, 1, (Dec., 1946):65-70.*]

Trichinella Larvae Harbor Choriomeningitis

Experiments showed clearly that the virus of choriomeningitis was harbored within (not merely adhered to) larvae of *Trinchinella spiralis*. Guinea pigs were infected concurrently with the virus and the parasite. The virus was acquired by the parasite after maturation in the muscles. The disease was transmitted to normal guinea pigs by feeding the living larvae and also by injecting subcutaneously a suspension of triturated dead larvae.—[*The Transmission of the Virus of Lymphocytic Choriomeningitis by Trinchinella Spiralis. By J. T. Syverton, O. R. McCoy, and J. Koomen, Jr. J. Exptl. Med., 85, (June 1, 1947):759-769.*]

Periodic Ophthalmia

Reports from veterinarians in various parts of Switzerland revealed that periodic ophthalmia was most common in damp, swampy areas. This fact, plus the report that camels were reported to develop ophthalmia when associated with persons having leptospirosis, suggested that periodic ophthalmia may be due to leptospira.

Antigens prepared from various species of Leptospira were used to do agglutination tests on the serums of 291 normal horses and of 263 horses with periodic ophthalmia. Of these, 89 were acute, 66 subacute, and 108 were old cases. Of the acute cases, 45 reacted with *L. grippotyphosa*, 17 with *L. pomona*, and 11 against *L. australis* in titers of 1:400 or above. In the group of 66 subacute cases, 29 reacted with *L. grippo-typhosa*, 17 with *L. pomona*, 11 with *L. australis*, and 1 with *L. sejro* in a titer of 1:400 or more. Of the old cases, 49 reacted with *L. grippo-typhosa*, 15 with *L. pomona*, and 11 with *L. australis* in a titer of 1:400 or higher. Of the serums from normal horses, only 22 reacted with any of the leptospira antigens.

Agglutination tests made with aqueous humor revealed that in 11 acute cases the titer

was greater than that of the serum but in the old cases there were no significant differences. It was not possible to isolate leptospira from horses with periodic ophthalmia, nor was experimental infection successful.—[*H. Heussen: Is Periodic Ophthalmia a Form of Leptospirosis? Schweiz. Arch. Tiesheilk, 90,* (1948): 288-312.]—A. G. K.

Mycosis of the Guttural Pouch

Six fatal, equine cases are described. There was diphtheritic inflammation of the pouch with extension to the branches of the internal maxillary artery. The thromboendarteritis caused severe hemorrhage, visible as epistaxis. In some cases, the arterial pathology resembled periarteritis nodosa. Inflammation of the glossopharyngeal nerve resulted in pharyngeal paralysis and aspiration pneumonia. Fungi cultured from 1 case were identified as *Citromyces pfefferianus* and *Oidium eupuli.*—[*V. Z. Chernyak and A. A. Gusev, Leningrad Vet. Inst.: Mycosis of the Guttural Pouch (Gutturomycosis Aerocystomycosis of Horses. Veterinariya, 25, (March, 1948):20-21.*].—R. E. H.

Wound Temperature and Treatment

Incised wounds were made in the muscles of the withers in horses and dogs [number unspecified]. They were inoculated with pyogenic Streptococci and Staphylococci or with *Bacillus vibrioseptique* [*Clostridium septicum?*]. The temperature within the wound and the body temperature of the animal were measured.

In the first six to eight hours, the body temperature was normal and the wound temperature was 0.7 to 1.0 degree lower. At this stage, heat therapy (paraffin applied at 65 C.) was contraindicated.

In forty-eight hours, at the stage of inflammatory infiltration, the body temperature was normal or subfebrile, and the wound temperature, having risen 1.2 to 1.6 degree, was approximately the same as the body temperature. Short-time thermal irritation with hot paraffin at this period was beneficial.

After three to five days, when the wound was in the purulent stage, the body temperature was high or subfebrile, and wound temperature was the same as the body temperature, or 1.8 to 3.0 degrees higher than in the first stage. Continuous heat was contraindicated under these conditions, but short treatments daily for three days with hot paraffin reduced the wound temperature, accelerated healing, and inhibited bacterial growth.

In the stage of granulation and epithelization, wound temperature had returned to that of the first stage, and heat therapy was contraindicated.—[*M. N. Kirillov: The Thermal Factor and the Principle of Concentrated Heat Therapy of Wounds. Veterinariya, 25, (Feb., 1948): 25-28.*]—R.E.H.

BOOKS AND REPORTS

Veterinary Helminthology

This edition of a book which has long been considered one of the leading sources of information on veterinary parasitology has been amplified with plates showing the eggs of the parasites of the several species of domestic animals. The book has been modernized to a great degree, with alterations in accordance with new information recorded since 1938. For the American veterinarian, it leaves some things to be desired inasmuch as such newer products such as DDT, benzene hexachloride, chlordane, and others are briefly mentioned or completely omitted. For example, all the information on DDT is contained in about half a page, while BHC is not mentioned.

Two outstanding improvements have been made over the preceding edition: seven pages of plates showing the ova of some 130 species of parasites, and an improved quality of paper. The book remains primarily a text for students and laboratory workers, rather than for practitioners.—[*Veterinary Helminthology and Entomology. 3rd Ed. By H. O. Mönnig, University of Pretoria. 427 pages, 15 plates, 275 illustrations. Williams and Wilkins Co. Baltimore 2, Md., 1947. Price $9.00.*]

Pathology of Nutritional Disease

A book which gathers the available information dealing with the physiologic and morphologic changes which may occur naturally or be produced experimentally in company with deficiencies of various types. It correlates the work of the anatomist, the pathologist, the biochemist, and the nutritionist. And while it is written and interpreted in terms of human disease, there is much basic information which is of equal value in veterinary practice.

Not only does this book summarize the knowledge of a wide variety of deficiency conditions, but it carries a list of 791 references in which the problems are discussed in greater detail.

After dealing with dietary deficiencies in general, the book treats individually 14 chemical elements, 10 essential amino acids, 15 fat and water soluble vitamins, and 3 essential fatty acids. It concludes with a recapitulation and comparison of the pathologic anatomy of specific tissues: epithelial, mesenchymal, hemopoietic, muscular, and nervous.

Nutritional disease is discussed carefully, completely, and in the light of up-to-date information. A book which will pay for itself in the library of any practicing veterinarian.—[*The Pathology of Nutritional Disease. By R. H. Follis, Jr., M. D., Duke University School of Medicine. 310 pages, 110 illustrations, cloth. Chas. C. Thomas, 301 East Lawrence Ave., Springfield, Ill. 1948. Price $6.75.*]

Digestion of Fats

A critical appraisal of the literature on fat absorption, this book contains a vast amount of practical and technical information on the physical and chemical properties of fats, their digestion and absorption, and the rôle of the several portions of the digestive tract in the assimilation and metabolism of this group of nutrient materials.

The book is essentially an annotated bibliography, but each of the titles listed is accompanied by one or two concise statements which excerpt or abstract the essential conclusions presented.—[*Absorption of Fat in Various Nutritional and Environmental States. By I. I. Chaikoff, C. Entenman, and D. Zilversmit, University of California Medical School. 251 pages, paper. Quartermaster Food and Container Institute for the Armed Forces. Chicago 9, Ill. 1947.*]

Rabies

A review of the rabies problem in the United States, but especially in New Jersey. Tables show the incidence of known cases of rabies, of dog bites in cities of various sizes, and of the receipts and expenditures under the New Jersey Rabies Control Act of 1941. A significant statement appears after a summary of the activities during five and one-half years of intensive effort in rabies control. It is: "The annual recurrence of cases of rabies in significant numbers has given rise to the view that the surest and safest approach to the eventual eradication of rabies from the canine population of this state is by adding immunization to the current program."

A leaflet, in color, which accompanies a reprint of this item, has been prepared for widespread distribution among dog owners. It says, in part: "Rabies can be prevented by a community control program. Vaccination of dogs is the keystone of the rabies control program. Vaccination affords proved protection and is endorsed by the National Research Council of Animal Diseases. Have your dog vaccinated — consult your veterinarian." — [*Rabies. By J. S. McDaniel, Veterinarian-in-charge, Rabies Control Unit, N. J. State Department of Health. 8 pages. Reprint from Public Health News, March, 1948.*]

Kansas Association Proceedings

The proceedings of the forty-third annual convention of the Kansas Veterinary Medical Association, held in Wichita on January 13 and 14, 1947, were combined with those of the preceding annual convention held in Topeka on January 14 and 15, 1946. These two reports were compiled by the secretary and printed for distribution to association members.

This report to the members provides an accurate stenographic record of the business meetings, of the scientific papers presented, and of the discussions. Moreover, it provides a permanent record of the activities and progress of the association and of the persons who contributed to that progress.—[*Proceedings, Kansas Veterinary Medical Association, 1946 and 1947. Compiled and edited by C. W. Bower, secretary, Topeka, Kan. 148 pages.*]

Milk Marketing

An exposition of the Agricultural Marketing Act, and particularly of the effect of government regulation on the milk industry. The book presents information regarding the history of the Act, its substance, and its administration; in short, the problems faced by the dairy industry in learning to "live under regulation" and to become a cog in the plan for a "controlled economy."—[*Milk Marketing Under Federal Control. By Milk Industry Foundation, B. F. Castle, President. 205 pages, cloth. Central Printing Co. New York, N. Y.*]

Poultry Diseases

The second edition of this book is even larger and more complete than was the original edition published in 1943. In a sense, that is as it should be, for it has been modernized to include the information which has accumulated in the interim.

The book is so widely and so favorably known that it seems needless to attempt to list the 33 authors who contributed, or the 40 chapters into which the text has been divided. It can be stated truthfully that the book will answer any question about a poultry health problem, and that every author of note in the poultry field has participated in preparing the book, either by actively working with the editors or by virtue of a review of his work and a listing of the references to his pronouncements.

The chief differences between the second edition and the first are in greater completeness, modernization to include therapy with the sulfonamide drugs and the antibiotic agents, and expansion of most chapters to incorporate the results of recent research.

The editors have painstakingly assembled the works of the several authors and have presented them for the use of practicing veterinarians and research pathologists, as well as for poultry breeders. The veterinarian who fails to provide himself with a copy of this second edition will not be using the best. He will find himself spending more time trying to find a satisfactory answer to his poultry problems through any other sources with which we are familiar.—[*Poultry Diseases, Second edition. 40 chapters by 33 authorities. Edited by H. E. Biester and L. H. Schwarte, Veterinary Research Institute, Ames, Iowa. Cloth. 1,154 pages, 358 illustrations. Iowa State College Press, Ames. 1948. Price $10.50.*]

THE NEWS

The International Veterinary Congress

Its Make-Up, Aims, and Organization

It is over ten years since the last International Veterinary Congress was held in Zurich, Switzerland, in 1938, and nearly fifteen years since the last Congress met in the United States (New York, 1934). Because of the long intervals between recent Congresses, it is desirable that definite facts and information about them be published in order to answer some of the most frequently asked questions, and so that veterinarians everywhere may be properly informed and become interested in membership in, and attendance at, the Fourteenth International Veterinary Congress to be held in London, Aug. 9-14, 1949, the first general announcement of which was published in the October JOURNAL, pages 368-369.

1) *What is the International Veterinary Congress?*

It is an association of veterinarians which includes in its membership the leading veterinarians of all countries of the world.

2) *What is the aim of the International Veterinary Congress?*

The aim is to provide an interchange of information with reference to the latest knowledge and achievements in veterinary science. With this end in view, the most important scientific subjects relating to veterinary medicine and surgery, to veterinary research, and to livestock disease-control will be discussed by outstanding authorities of the countries represented at the Congress. Such meetings result in establishing contacts and friendships between the members of the profession in various parts of the world, which are mutually helpful in the development of the veterinary profession and which contribute greatly to better understandings between the peoples of the various countries.

3) *How is the membership of the Congress made up?*

The membership consists of (a) Honorary Members, (b) Ordinary Members, and (c) Extraordinary Members.

Honorary members are those on whom the Congress has conferred honorary membership in recognition of their scientific work or of their services to the profession and science.

Ordinary members are delegates of foreign governments; delegates of veterinary and other colleges; delegates of veterinary societies; delegates of agricultural corporations and organizations; delegates of authorities, state and municipal administrations; and graduate veterinarians and other representatives of medical science or practice admitted by the Organizing Committee of the particular Congress which is being held.

Extraordinary members are veterinary students and other persons considered eligible by the national committees of the various countries, *e.g.*, the United States Committee on the Fourteenth International Veterinary Congress.

4) *How large a membership has the International Veterinary Congress?*

The membership has grown from more than 100 members at the First Congress in Hamburg, Germany, in 1863, to a high of more than 3,300 at the Twelfth Congress in New York in 1934; it fell off to about 1,500 in 1938 (Zurich), which was about the normal membership for Congresses held during the present century.

5) *What are the dues and financial administration?*

The revenues of the Congress consist of subscriptions from members and voluntary contributions from authorities, societies, and private persons. These funds must be solicited in advance of the Congress. (The membership subscription for the London Congress has not yet been announced; as soon as it is, it will be published in the JOURNAL, so that veterinarians in this country may subscribe and receive the proceedings of the Congress, whether or not they attend the London session.)

6) *Who are the officers and what are the committees of the Congress?*

Officers: a president, three vice-presidents, a general secretary, a treasurer, and the required number of under-secretaries. The committees: Committee on Honor; Permanent Committee; Organizing Committee; Finance and General Purpose Committee; Program Committee; Entertainment Committee. The various countries organize national committees for each Congress. At the final meeting of the Congress, the date and place for the succeeding Congress are determined, with the previous approval of the Permanent Committee.

7) *What is the Permanent Committee?*

The Permanent Committee corresponds to a board of directors of a bank. It formulates the policy of International Congresses, passes upon the subjects to be placed on the program for the Congress, considers all resolutions before final action by the Congress, protects the common interest, and serves as a connecting link between successive Congresses.

8) *What is the Organizing Committee?*

An Organizing Committee is appointed, in the country where the Congress is to be held, for the purpose of making preparations for the Congress. It is authorized to appoint special committees to carry on the preliminary work.

to organize the sections into which the Congress program is divided, to take charge of the financial administration, to arrange receptions, excursions, etc. Subjects to appear on the program and reporters on these subjects are selected by the Permanent Committee in concert with the Organizing Committee. National committees are appointed in other countries on the initiative of the Organizing Committee.

9) *How is the program prepared?*

The procedure is as follows: The Organizing Committee selects subjects and reporters, and submits the tentative program to the Permanent Committee for approval. The Permanent Committee then considers the tentative program in connection with the subjects and reporters recommended to discuss them by the national committees of various countries, and confers with the Organizing Committee in modifying the tentative program so as to make it as comprehensive, constructive, and as interesting as possible.

LONDON PROGRAM NOW BEING PREPARED

A tentative program for the general sessions and sections of the Fourteenth Congress in London next year was outlined several months ago. Since then, the Organizing Committee in London has been receiving and considering subjects and reporters, and the United States Committee has recommended a number of subjects and reporters from this country to present them. As soon as the program is firm and is announced by the Permanent and Organizing Committees, it will be given as much advance notice as possible in the JOURNAL. In succeeding issues, other information about the London Congress program will also be published, including the European tour which is being planned under the direction of Dr. D. M. Campbell of Chicago.

WOMEN'S AUXILIARY

The JOURNAL welcomes this month the first of a series of articles which will be devoted to the activities of the Women's Auxiliary, and which, it is hoped, will appear each month under the column head shown above.—THE EDITORS.

Mrs. Bott Outlines Program for 1948-1949.—The Women's Auxiliary to the AVMA was in session during the annual meeting of the AVMA in San Francisco, Aug. 16-19, 1948. The Auxiliary's general meeting was called following a luncheon at the Fairmont Hotel, on Wednesday, August 18, attended by members and the wives of visiting veterinarians. The Auxiliary presented its program and plans for advancement during the coming year.

The student loan fund, which furnishes financial help to young men in schools of veterinary medicine, was a major interest. Another project is an award to be given to a senior student in each of the recognized colleges, who has done an outstanding piece of work.

During the past year, the efforts of the first vice-president were directed to developing auxiliary organizations among the women in connection with the various state and provincial veterinary associations. Out of this project grew the House of Representatives, made up of representatives from each organized auxiliary, with the authority to approve policies and plans. The second annual meeting of the House of Representatives was held on

Mrs. A. E. Bott

August 16, with Mrs. J. L. Wells of Missouri presiding and Mrs. Dennis Coughlin of Tennessee acting as secretary for Mrs. R. A. Hendershott of New Jersey. Mrs. Anthony E. Bott, of Illinois, first vice-president of the auxiliary, served as sponsor.

At this meeting, all official matters, previously considered and approved by the executive board, were voted upon and in turn presented to the general assembly for final approval. The officers elected for the House of Representatives for the coming year are Mrs. Floyd White of California, *chairman*, Mrs. C. E. Bild of Florida, *secretary*, and Mrs. V. H. Miller of West Virginia, *sponsor*.

The following officers were elected for the coming year to direct the work of the executive board: Mrs. Anthony E. Bott, *president*, 6 Wilson Road, Country Club Place, Belleville, Ill.; Mrs. V. H. Miller, *first vice-president*, 2636 Kanawha Blvd., East, Charleston, W. Va.; Mrs. Dennis Coughlin, *second vice-president*, 1713 Yale Ave., Knoxville, Tenn.; Mrs. H. W. Ayers, *third vice-president*, 916 West 4th St., Oklahoma City, Okla.; Mrs. H. S. MacDonald, *fourth vice-president*, 51 Oakmont Road, Toronto, Ont. The Board voted to reappoint Mrs. C. L. Miller, 348 Forest Ave., River Forest, Ill., as *secretary-treasurer*.

Mrs. Bott will supervise the work of the Board and keep in close touch with all state, regional, and provincial auxiliaries. Her project for the coming year is to develop an official manual, outlining the duties and obligations of each member of the executive board. As the officers are to be introduced through the JOURNAL, their duties and responsibilities will also be outlined as they appear in the manual. Each officer will have specific duties that will aid in

the constructive development of the Women's Auxiliary to the AVMA. To be eligible for office, it is necessary to have been a member no less than two years and to have served the state, regional, or provincial auxiliary organization in some capacity of leadership.

Application for membership in the Women's Auxiliary to the AVMA is important, and at all times the secretary-treasurer will be pleased to receive your membership fee of $1.00.

s/(MRS. A. E.) ETHLYN W. BOTT, *President.*

STUDENT CHAPTER ACTIVITIES

Iowa Chapter.—First-term officers for the Iowa State College Student Chapter of the AVMA are S. King, *president;* J. Cowles, *president-elect;* R. Williams, *vice-president;* L. Bunge, *treasurer;* R. Bunge, *secretary;* G. Flater, *critic.* Since Dr. Arnold, who was the faculty representative at the last meeting, has left the staff, a new member will be chosen at an early meeting. This year's activities began with a banquet to welcome new student and faculty members. Mr. Arthur Brayton, secretary-manager of the Des Moines Convention Bureau, was guest speaker at the banquet. At the first meeting, held in Great Hall, Memorial Union, Mr. Scott Ellis, Dallas Center, spoke on "What the Livestock Grower in Iowa Expects of a Veterinarian."

s/ROLAND C. BUNGE, *Secretary.*

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

First Listing

CHOUDHURY, BIMOLENDU
Box 2404, College Station, Texas.
G.B.V.C., Bengal Veterinary College, Bengal, India, 1933.
Vouchers: V. B. Robinson and R. D. Turk.

CLINE, CLIFFORD M.
25 Brown Ct., Petaluma, Calif.
D.V.M., St. Joseph Veterinary College, 1914.
Vouchers: G. D. Hambrook and A. Seligman.

KONDRA, BOHDAN
315 Hurley St., Cambridge 41, Mass.
V.S., Academy of Veterinary Medicine, Lwow, Poland, 1933.
Vouchers: J. R. Dole and D. E. Gibbs.

KORECKI, THEODORE
315 Hurley St., Cambridge 41, Mass.
V.S., Academy of Veterinary Medicine, Lwow, Poland, 1942.
Vouchers: G. W. Famous and D. E. Gibbs.

MILLER, FRANK G.
1220 25th St., Ogden, Utah.
D.V.M., Iowa State College, 1908.
Vouchers: F. H. Melvin and C. L. Jones.

PARKER, LUTHER L.
102 Wayland Ave., Charlotte 6, N. Car.
V.M.D., University of Pennsylvania, 1940.
Vouchers: M. R. Blackstock and A. A. Husman.

PATE, LEWIS J.
1102 State Office Bldg., Richmond 19, Va.
D.V.M., Alabama Polytechnic Institute, 1930.
Vouchers: E. E. Thompson and H. S. Miller.

PATE, WALTER E.
516 West Polk, Houston 6, Texas.
D.V.M., Texas A. & M. College, 1946.
Vouchers: J. G. Horning and R. D. Ward.

PHIFER, WILLIAM G.
317th Sta. Hosp., APO 633, c/o Postmaster, New York, N. Y.
D.V.M., Alabama Polytechnic Institute, 1936.
Vouchers: H. R. Hoon and L. E. Beckham.

SOLER, JOSE L.
P.O. Box 604, Caguas, Puerto Rico.
Alabama Polytechnic Institute, 1947.
Vouchers: I. S. McAdory and C. S. Roberts.

Second Listing

Borman, Ben H., 201 W. Devon, Milwaukee 11, Wis.

Bradley, Walter, Bay Animal Clinic, 602 S. Henry St., Bay City, Mich.

Buller, John J., 2095 Vestal Ct., San Leandro, Calif.

Chambers, Charles H., Fremont, Neb.

Houser, Raymond R., 507 C St., Broderick, Calif.

Jimenez M., Jose M., Salvador Cisneros 236, Bauta, Havana, Cuba.

Moller, Alfred W., 8369 Elmore, University Bldg., St. Louis, Mo.

Streetman, Edward G., Box 626, Nederland, Texas.

1948 Graduate Applicants

First Listing

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Alabama Polytechnic Institute

All of the following applicants were vouchered by Dr. R. S. Sugg and Dr. I. S. McAdory:

BROOKS, JONAS R., D.V.M.
Box 264, Eatonton, Ga.

COMPTON, DARRELL H., D.V.M.
Greenwood Veterinary Hosp., Greenwood, S. Car.

COOK, WILLIAM C., D.V.M.
934 N. Broadway, Knoxville, Tenn.

DUNLAP, JAMES R., D.V.M.
c/o Dr. L. E. Beckham, Tuscaloosa, Ala.

ELLIS, JR., JESSE C., D.V.M.
Zachary, La.

HAYS, WILLIAM L., D.V.M.
771 Holcombe Ave., Mobile, Ala.

JONES, WILLIAM G., D.V.M.
1000 Loucks Ave., Scottdale, Pa.

KILLIAN, GEORGE S., D.V.M.
Rt. 1, Portersville, Ala.

MATTHEWS, WATSON H., D.V.M.
Ebenezer Rd., Rock Hill, S. Car.

MOSELY, JOHN D., D.V.M.
Bonifay, Fla.
OLIVER, JR., THOMAS W., D.V.M.
307 Graham St., Montgomery, Ala.
PEACE, JR., JOHN W., D.V.M.
Northwood Acres Veterinary Hosp.,
Rt. 1, High Point, N. Car.
PURVIS, JR., HARLEY E., D.V.M.
Baxley, Ga.
TURNER, LEON W., D.V.M.
Louisville, Miss.
TURNER, LOYCE W., D.V.M.
P.O. Box 157, Valdosta, Ga.

Ontario Veterinary College

HANSON, MORRIS, D.V.M.
Div. of Animal Husbandry,
U. of Calif., Davis, Calif.
Vouchers: H. S. Cameron and G. H. Hart.

University of Pennsylvania

DONOVAN, WILLIAM D., D.V.M.
R. D. No. 2, Box 41, Ligonier, Pa.
Vouchers: S. Glenn and W. F. Hoffman.

Texas A. & M. College

MCNEILL, JR., S. E., D.V.M.
306 N. Jefferson St., Beeville, Texas.
Vouchers: R. D. Turk and J. H. Milliff.

Second Listing

Alabama Polytechnic Institute

Poehlmann, Nancy Lee, D.V.M., Warrenton, Va.

University of the Philippines

Noll, Donald O., D.V.M., 352 Delaware Ave., Palmerton, Pa.
Pillai, C. Perumal, D.V.M., Veterinary Research Laboratory, Peradeniya, Ceylon.

Texas A. & M. College

McClain, Jr., G. D., D.V.M., 2733 Knight St., Dallas, Texas.

U. S. GOVERNMENT

Short Course in Rabies Diagnosis.—A course in the laboratory diagnosis of rabies will be offered Dec. 6-10, 1948, at the laboratories of the Communicable Disease Center in Atlanta, Ga. The course is essentially practical laboratory training, enabling the students to carry out the various procedures themselves to insure proficiency. It is supplemented by lectures and demonstrations. Included in the program are preparation of smears and stains, techniques for gross brain dissection, mouse inoculation and symptomatology, microscopy, and cost and materials. For details, write the Veterinary Public Health Division, Communicable Disease Center, U. S. Public Health Service, 605 Volunteer Building, Atlanta 3, Ga.

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Veterinary Personnel Changes.—The following changes in the force of veterinarians in the U. S. BAI are reported as of Sept. 16, 1948, by Chief B. T. Simms.

TRANSFERS

John B. Champlin, from Lincoln, Neb., to Jefferson City, Mo.

Ashley J. Clark, from San Antonio, Texas, to Memphis, Tenn.

Ralph C. Fish, Jr., from Baltimore, Md., to Mexico City, Mexico.

Robert T. Habermann, from Washington, D. C., to Beltsville, Md.

Forrest E. Henderson, from Sacramento, Calif., to Mexico City, Mexico.

James R. Houchins, from Richmond, Va., to Columbia, S. Car.

H. Brooks Keith, from Olympia, Wash., to Portland, Ore. (previous transfer to Albuquerque, N. M., has been cancelled).

Ralph P. Reid, from Little Rock, Ark., to Mexico City, Mexico.

Raymond V. Schoentrup, from Boise, Idaho, to Mexico City, Mexico.

B. Conwell Swindle, from Montgomery, Ala., to Jacksonville, Fla.

George W. Trubey, from Detroit, Mich., to Lansing, Mich.

Leroy L. White, from Sacramento, Calif., to Salt Lake City, Utah.

RESIGNED

Leroy S. Crump, Madison, Wis.
Charles A. Deadman, Madison, Wis.
Norman T. Freid, Los Angeles, Calif.
Scott O. Galbreath, Jr., Jackson, Miss.
Arthur K. Hayden, Boston, Mass.
William S. Lowe, Los Angeles, Calif.
James H. Milligan, Jr., Mexico City, Mexico.
Arnold M. Snyder, Los Angeles, Calif.
Irwin A. Taylor, Madison, Wis.

RETIRED

Joseph S. Jenison, Union Stockyards, Ill.
Perry Zenor, Sioux City, Iowa.

TERMINATION

Rudolph D. Radeleff, Kerrville, Texas.

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Dr. MacKellar Retires.—Dr. William M. MacKellar (NYC '99), principal veterinarian in charge of the Interstate Inspection Division of the Bureau of Animal Industry, USDA, retired September 30, after nearly forty-eight years of continuous service, having entered the BAI in December 1900 and served continuously in various posts.

When the BAI undertook the eradication of cattle fever ticks in coöperation with southern states in 1906, Dr. MacKellar directed the work of eliminating such ticks from California and Georgia. As a further contribution to this large-scale veterinary undertaking, now in its final stages, Dr. MacKellar devised and inaugurated systems of records that simplified and reduced the cost of the work. In 1922, he was transferred to Washington where he became assistant chief of the Tick Eradication Division of the BAI. In March, 1933, he became chief of the division. At the time of his retirement, Dr. MacKellar was chief of the Interstate Inspection Division which performs numerous activities in connection with the interstate movement of livestock.

Dr. MacKellar was honored at an informal ceremony and party at the close of his last day of official service.

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Congress Fortifies F&DA Powers.—The court decision limiting the authority of the Food and

Drug Administration was straightened out by an amendment passed at the last session of Congress in July. The amendment was passed unanimously by the House but narrowly escaped defeat in the Senate through the opposition of a group of southwestern millers, several of whom had been convicted of selling insect-infested flour. As the law now stands, the F&DA may initiate criminal proceedings when the misbranding or adulterating of goods takes place at wholesale or retail levels, provided such goods have moved in interstate commerce. The amendment merely puts in statutory language the Supreme Court decision to that effect which, in its turn, reversed a lower court ruling that had practically emasculated the power of the 42-year-old efforts to remove unfit food and drugs from the market.

AMONG THE STATES AND PROVINCES

Alabama

Personal.—Wm. H. Waddell, Jr., B.B., B.S. in A.H., and D.V.M., has resigned as professor of Obstetrics and Ambulatory Clinics of the School of Veterinary Medicine of Tuskegee Institute, Ala. Prior to his resignation, Dr. Waddell had been affiliated with the Institute for thirteen years. He has returned to private practice.

Alaska

Veterinary Public Health Program in Alaska.—Dr. Paul J. Brandly, U. S. Public Health Service, will be in charge of all veterinary public health activities in Alaska and will make his headquarters at the Air Medical Laboratory, Ladd Field, Fairbanks, Alaska.

VETERINARIAN TO STUDY ALASKA ANIMAL LIFE
THINK I'LL HAVE HIM LOOK ME OVER - I LEAD A DOG'S LIFE
YEAH - THAT'S A GOOD IDEA I'VE BEEN SICK AS A HORSE MYSELF

—From the Anchorage Daily Times

He will carry on investigations on neurotropic, pulmonary, parasitic, enteric, and foodborne diseases that have a reservoir in animals. Initial studies will be on the neurotropic diseases such as rabies and the various encephalitides.

s/JAMES H. STEELE, *Chief,*
Veterinary Public Health Division
Communicable Disease Center.

Arkansas

Central Arkansas Association.—The Central Arkansas Veterinary Medical Association held a barbeque at the country home of Dr. and Mrs. Rease Mitcham Sept. 25, 1948. State senators and representatives, and health officers and their wives from Little Rock and Pulaski County also attended this meeting.

California

Veterinarian Honored.—Dr. Karl F. Meyer, University of California Medical School epidemiologist, was honored by the alumni association of that institution who designated their annual reunion meeting as "Karl Meyer Day."

During the ceremonies, the faculty presented a portrait of Dr. Meyer to the medical school. Dr. Meyer also received a bound volume of 300 letters sent to him on the occasion of his sixty-fourth birthday from prominent colleagues, asociates, and former students from all over the world.

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Dr. Railsback Transferred.—Transfer of Dr. Guy Railsback to the main office in Berkeley, Calif., has been announced by Cutter Laboratories. A native of Langdon, Kan., Dr. Railsback received his D.V.M. degree from Kansas State College, School of Veterinary Medicine, Manhattan, in 1939 and has been representing the West Coast biological firm, from its Chicago office, as field veterinarian.

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Charge Meat Being Smuggled from Mexico.—Mexican beef is being smuggled into southern California by boats returning from fishing expeditions, USDA representatives have charged in a report to law enforcement authorities at Newport Beach and at San Pedro.—*Western Livestock J., Aug. 26, 1948.*

Colorado

State Association.—The annual fall meeting of the Colorado Veterinary Medical Association was held in the Shirley Savoy Hotel in Denver Sept. 30 to Oct. 1, 1948. After the address of welcome by President J. R. Naylor, the following program was presented:

Dr. J. Farquharson, Department of Surgery and Clinic, Department of Veterinary Medicine, Ft. Collins: "Large Animal Practice" (with illustrations).

Dr. R. M. Mulligan, Department of Pathology, University of Colorado Medical Center, Denver: "The Types of Neoplasms in Five Breeds of Dogs, and the Statistical Survey of the Breeds of Dogs Licensed in Denver in 1947."

Dr. E. R. Frank, Department of Surgery and Medicine, Kansas State College, Manhattan, Kan.: "Equine Surgery" and "Bovine Surgery" (with illustrations).

Dr. K. W. Smith, Sioux City, Iowa: "Small Animal Practice."

Dr. M. D. Baum, U. S. Public Health Service, Veterinary Section, Denver: "A One Year's Progress Report of the Veterinary Public Health Program in Colorado."

Dr. Floyd Cross, dean, Division of Veterinary Medicine, Colorado A. & M. College, Ft. Collins: "Problems in the Department of Veterinary Medicine at Colorado A. & M."

Mr. L. E. Harris, director, Pharmaceutical Research, Norden Laboratories, Lincoln, Neb.: "The Veterinarian on the Witness Stand."

Drs. I. E. Newsom and R. F. Bourne were honored at the banquet.

A complete program was planned for the ladies by the Women's Auxiliary.

s/W. P. BLAKE, *Secretary.*

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Endocrinology Research. — Norden Laboratories, of Lincoln, Neb., has awarded a research grant to Colorado A. & M. College to support endocrinology investigations under the direction of Dr. F. X. Gassner.

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Personal.—Mrs. William I. Lipe, wife of Dr. Lipe (COLO '46), Fowler, Colo., was accidentally killed June 1, 1948.

Georgia

First Woman Veterinarian.—Georgia can now boast of having its first practicing woman veterinarian. She is Dr. Jane Benson, 1039 Marietta St., Atlanta, and was graduated from New York State Veterinary College, Cornell, in 1947.

s/CHARLES C. RIFE, *Secretary.*

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New Publication. — The first issue of *The Georgia Veterinarian*, which was published in September, has been well received by the Georgia veterinarians. It will be published bi-monthly with the second issue due in the early part of November.

Hawaii

—Pan American Airways Photo

Members of the American Veterinary Medical Association and their wives arriving in Honolulu by clipper to attend the post-convention meeting at Honolulu. Flying over from the San Francisco convention, Aug. 16-19, 1948, Drs. W. M. Coffee, E. E. Jones, A. R. Miller, H. P. Noonan, D. C. Wood, and C. J. Noonan reviewed for the Hawaiian veterinarians some of the papers presented at San Francisco

On the ramp (top to bottom): Drs. W. M. Coffee, C. J. Noonan, E. E. Jones, H. P. Noonan, and F. H. Saunders. Front row (left to right): Mrs. Oscar J. Krone, Mrs. H. P. Noonan, Dr. Oscar J. Krone, Mrs. E. E. Jones, Mrs. C. J. Noonan, Dr. D. C. Wood, and Dr. F. E. Button.

Illinois

Nutrition Meeting.—The Second Annual Public Meeting on Nutrition, sponsored by the Chicago Medical Society and coöperating organizations, was held in Chicago on Oct. 13-14, 1946. The program was planned to bring to the public information concerning all phases of nutrition with emphasis on the health and economic aspects, and on the importance of foods of animal origin. Among the speakers were:

Dr. John P. O'Neil (M.D.), chairman, Nutrition Committee, Chicago Medical Society: "The Wedding of the Sciences in Human Nutrition."

J. Sotola (Ph.D.), assistant director, Livestock Bureau, Armour and Co., Chicago: "Your Meat and You."

Dr. Christian E. Segard (M.D.), medical director, Wisconsin Alumni Research Foundation, New York City: "Fat-Free Certified Milk."

Dr. Herman N. Bundesen (M.D.), president, Chicago Board of Health, Chicago: "Public Health and Food."

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Central Illinois Association.—In a precedent-breaking move to achieve better coöperation in dealing with farm problems, the Central Illinois Veterinary Medical Association invited state agricultural leaders to attend its bimonthly meeting on Sept. 23, 1948, at the Elks Club in Springfield. The farm bureaus of 15 counties were represented by the farm adviser and/or farm bureau president. Three directors of the board of the Illinois Agricultural Association also attended. About 120 farm leaders and veterinarians were present at the meeting.

Arnold P. Benson, state director of agriculture, spoke on the value of coöperation between the agricultural association and veterinarians. Dr. C. Don Van Houweling, Chicago, director of the Department of Veterinary Medical Relations in the Illinois Agricultural Association, was master of ceremonies. Other speakers at the meeting were Dr. R. C. Klussendorf, assistant executive secretary of the American Veterinary Medical Association, Chicago; Dr. E. T. Anderson, president of the Illinois State Veterinary Medical Association, Dixon; Dr. Robert Graham, dean of the College of Veterinary Medicine at the University of Illinois, Urbana; Mr. K. T. Smith, a board director of the Illinois Agricultural Association, and Mr. M. N. Meyers, farm adviser of DeWitt County and vice-president of the Farm Advisers Association.

s/C. DON VAN HOUWELING, *Director, Veterinary Medical Relations.*

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Northern Illinois Association.—The fall meeting of the Northern Illinois Veterinary Medical Association was held in the Hotel Nelson in Rockford on Sept. 22, 1948. The program follows.

Dr. H. E. Held, Freeport: "Discussion of X Disease."

Dr. A. G. Danks, Department of Clinical Medicine, College of Veterinary Medicine, University of Illinois, Urbana: "Surgical Diseases of Dairy Cows."

Dr. Joe Krichel, Keokuk, Iowa: "Small Animal Practice."

Dr. E. G. Howe, Iowa City, Iowa: "Beef Cattle Practice."

Dr. George Burch, Pitman Moore and Co., Research Laboratory, Zionsville, Ind.: "New Insecticides."

Officers elected at this meeting were Drs. H. P. Wessells, Geneva, *president;* C. L. Smith, Sycamore, *president-elect;* A. A. Legner, Sandwich, *secretary-treasurer* (reëlected); J. B. Baber, Stockton, *Executive Board Member;* and A. A. Turner, Freeport, *ISVMA Executive Board.*

Mr. L. H. Geddes, past president of the Illinois Holstein Breeders Association, Rockford, was guest speaker at the banquet.

Included on the program of the Ladies' Auxiliary of the Northern Illinois Veterinary Medical Association were a luncheon, style show, cocktail hour, and the banquet.

s/A. A. LEGNER, *Secretary.*

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Three Join Veterinary College Staff.—Three new members have joined the staff of the University of Illinois College of Veterinary Medicine, Dean Robert Graham has announced.

Dr. Ray D. Hatch (ISC '37), formerly assistant professor of animal pathology, Michigan State College, has joined the department of veterinary clinical medicine as assistant professor. Dr. Hatch also has an M.S. from Iowa State College. He has taught veterinary subjects at Iowa State College, Virginia Polytechnic Institute and Michigan State College. He is now doing research on the causes of sterility in cattle.

Another new assistant professor of veterinary clinical medicine is Dr. Ralph E. Witter (CORN '40), who was associate professor of surgery and medicine at Kansas State College. Dr. Witter received an M.S. degree from Kansas State College in 1947. He taught small animal surgery and therapeutics and materia medica at Kansas State College.

Dr. Harold F. Meyers (COLO '46), formerly assistant professor of veterinary physiology, Colorado A. & M. College, has been appointed as instructor in the department of veterinary pathology and hygiene. Dr. Meyers served on the California Poultry improvement advisory board. He was also in general practice while in California.

s/LYLE E. ASHELFORD.

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Dr. W. A. Young on Rabies.—Dr. W. A. Young, AVMA Treasurer, and Managing Director of the Anti-Cruelty Society of Chicago, attended the meeting of the American Humane Association in New Orleans, Oct. 11-14, 1948. He delivered two papers before the convention—one entitled "A Common-sense Rabies Control Program," the other "An Educational Program for Conserving Wildlife." While in New Orleans he also spoke before the Lion's Club on "Some Ladies and Gentlemen I Have Met," telling about a few of his many unusual and interesting experiences with animals.

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Diagnostic Service.—Demonstrating close coöperation between the practicing veterinarian and the college laboratory, the College of Veterinary Medicine, University of Illinois, reported that 64,389 animal disease specimens were received by its diagnostic laboratory from

July, 1947, to July, 1948, of which 92 per cent came from practicing veterinarians. Twenty-nine different species of wild and domestic animals were represented, plus "hamburger, ticks, liniment, canned beans, and paint" suspected in livestock troubles. More than 30,000 turkey blood samples were tested for pullorum disease, many blood samples from cattle and swine were tested for brucellosis, and over 3,300 autopsies were performed on various species.

In a press report, the College pointed out that staff members carry on this work in cooperation with the state department of agriculture, adding that "they are a part of the team that is working with your local veterinarian in the fight against animal diseases."

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Poultry Science President.—Dr. H. M. Scott, of the state university, was elected president of the Poultry Science Association at the annual meeting held at Colorado A. & M. College in June.

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New Dog-Food Plant.—Allied Mills, makers of Wayne Dog Food, have enlarged their Peoria plant to a capacity of 60,000 lb. per hour—an indication of the growth of a needed industry that was barely existent a few years ago or before science stepped into that special field.

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New Feed Plant at Bloomington.—The Ralston Purina Company has purchased a site for a new feed plant at Bloomington. Soybean solvent extraction on a large scale is announced as one of its objectives besides the manufacture of livestock feeds.

Indiana

Short Course.—The thirty-sixth annual short course for veterinarians at Purdue University, Lafayette, was held Oct. 6-8, 1948. The following program was presented.

Dr. F. V. Washko, Department of Veterinary Science, Purdue University: "Infectivity of Brucella Suis to Cattle."

Dr. C. Wesley Eisele (M.D.), College of Medicine, University of Chicago, Chicago, Ill.: "Human Brucellosis."

Dr. R. F. Smith, Indiana state veterinarian, Indianapolis: "State Veterinarian's Office."

Dr. W. J. Gibbons, School of Veterinary Medicine, Alabama Polytechnic Institute, Auburn, Ala.: "The Differential Diagnosis of the So-Called X Disease."

Dr. J. C. Carey, West Liberty, Iowa: "Diseases of Beef Cattle."

Dr. M. R. Clarkson, U. S. BAI, Washington, D. C.: "Foot-and-Mouth Disease."

Drs. H. E. Moses, Department of Veterinary Science, Purdue University, and Osman Buyukkaya, Ankara, Turkey: "Anaplasmosis in Indiana."

Dr. L. P. Doyle, Department of Veterinary Science, Purdue University: "Transmissible Gastroenteritis in Pigs."

Dr. A. L. Delez, Department of Veterinary Science, Purdue University: "Trace Mineral Deficiencies in Cattle."

Dr. J. F. Bullard, Department of Veterinary Science, Purdue University: "X Disease in Indiana."

Dr. C. D. Lee, assistant extension veterinarian, Iowa State College, Ames: "Poultry Diseases."

Dr. W. R. Krill, dean, College of Veterinary Medicine, Ohio State University, Columbus: "Bovine Obstetrics."

Dr. R. F. Fenstermacher, Department of Veterinary Science, University of Minnesota, St. Paul: "Sub-Typical Hog Cholera."

Mr. W. D. Knox, associate editor, *Hoard's Dairyman*, Ft. Atkinson, Wis.: "Control of Brucellosis in Dairy Herds."

Dr. R. W. Smith, state veterinarian, Concord, N. H.: "Brucellosis Control in New Hampshire."

Dr. J. G. Hardenbergh, executive secretary of the AVMA, Chicago, Ill.: "Affairs of the American Veterinary Medical Association."

Special clinical and laboratory demonstrations were presented on large animals, swine, sheep, and poultry.

s/L. M. HUTCHINGS, *Chairman*,
Short Course Committee

Iowa

Southwestern Association.—The fall meeting of the Southwestern Iowa Veterinary Medical Association was held at the Hotel Rome, Omaha, Neb., on Oct. 5, 1948. The program follows.

Dr. E. L. Baldwin, Corn States Serum Co., Omaha: "Enterotoxemia in Sheep."

Dr. W. A. Eakin, Merrill, Iowa: "Swine Practice."

Dr. John Hurd, Schleswig, Iowa: "Veterinary Public Relations."

Dr. A. B. Pittman, Omaha: "Small Animal Practice."

The ladies were entertained at a luncheon at the Athletic Club.

s/M. R. BEEMER, *Secretary*.

Maine

New England Association.—The New England Veterinary Medical Association met at the Hotel Somerset on Oct. 14-15, 1948. A diversified group of papers was presented.

Dr. J. L. McAuliff, Cortland, N. Y.: "Diseases of Calfhood."

Dr. Richard Gilyard, Waterbury, Conn., led a panel discussion on "Cattle Practice."

Dr. Erwin F. Schroeder, chief of staff, the Angell Memorial Animal Hospital, Boston, Mass.: "Review of the Treatment of Fractures, Especially for the Practitioner."

Dr. C. P. Zepp, Sr., New York City, president-elect of the AVMA: "Surgical Treatment of Diseases of the Ear" (with illustrations).

Other speakers on the program included Drs. Mark Allam, Kenneth Bullis, Donald Baker, John Bentinck-Smith, and others.

s/C. LAWRENCE BLAKELY, *Secretary*.

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Newcastle Disease in Maine.—Although Newcastle disease was diagnosed two years ago in Maine, it was not until the past summer that serious outbreaks occurred. In one flock of 24,000 broilers, more than 7,000 died. By the time they were 8 weeks old. Brooder chicks were seriously affected, beginning with a respiratory disease and later developing nervous disorders, most characteristic of which was twisted necks. In older birds, the respiratory trouble was the chief symptom, but in laying flocks there was a complete cessation of laying for two to eight weeks.

Personal.—Dr. and Mrs. Donald Bush have left for Japan where Dr. Bush has accepted the appointment as assistant regional public health director in Yokohoma and will act as veterinary officer. During the past two years, Dr. Bush has been employed by Parke, Davis and Co. as research assistant parasitologist and veterinary consultant on animal parasitic and bacterial infections and infestations in relation to human public health and chemotherapeutics.

Massachusetts

State Association.—The regular monthly meeting of the Massachusetts Veterinary Association was held at the Highland Hotel, Springfield, on Sept. 22, 1948. After the business session, the scientific program was presented.

Dr. J. F. Witter, Orono, Maine: "Brucellosis Control, with Special Reference to Calfhood Vaccination."

Dr. Ellis P. Leonard, Department of Therapeutics and Small Animal Diseases, New York State Veterinary College, Cornell University, Ithaca, N. Y.: "Abdominal Surgery in the Dog."

s/C. LAWRENCE BLAKELY, *Secretary.*

Michigan

Statewide Pasteurization.—Effective July 1, 1948, Michigan became the first state to have a statewide pasteurization law. The new law and previous laws require that not only milk, but also butter, cheese, cottage cheese, and ice cream be made from pasteurized milk. Ypsilanti and Manistique are reported to be the only two places which have exempted themselves from the law (by referendum). An exception to the law is that farmers may sell raw milk at the farm where it is produced.—*Hoard's Dairyman, Aug. 10, 1948.*

Missouri

Kansas City Association.—The regular monthly meeting of the Kansas City Veterinary Medical Association was held at the Hotel Continental on Sept. 21, 1948. This meeting was designed after the conference held in Amarillo, Texas, on April 28, 1948, between members of the Livestock Committee of the National Association of County Agricultural Agents and the Committee on Public Relations of the American Veterinary Medical Association for the purpose of discussing "How Can County Agricultural Agents and Veterinarians, by Coöperative Activity, Better Improve Service to the Livestock Industry."

s/EARL L. MUNDELL, *Secretary.*

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Southeast Association.—The Southeast Missouri Veterinary Medical Association held its fall meeting in Hayti at the Hospital of Dr. J. V. Moore. The program follows.

Dr. Glen L. Dunlap, Kansas City, Mo.: "Some Miscellaneous Diseases of Swine."

Dr. J. P. Torrey, East St. Louis, Ill.: "Ticks and Their Control."

Dr. A. R. Bott, East St. Louis, Ill.: "Veterinary Films on Various Subjects."

Dr. C. H. Anthony, Kansas City, Mo.: "Case Reports of Large Animal Poisonings."

Dr. H. E. Curry, state veterinarian, Jefferson City, Mo.: "Discussion of Brucellosis Control."

Dr. W. M. Coffee, LaCenter, Ky.: "Large Animal Practice."

Dr. C. H. Beckman, St. Louis, Mo.: "Small Animal Practice."

Officers elected at the business meeting were Drs. John R. Adams, Jackson, *president;* J. M. Cullison, Charleston, *vice-president;* and F. A. Stepp, Sikeston, reëlected *secretary-treasurer.*

s/F. A. STEPP, *Secretary.*

Montana

Dr. Butler Retires.—Dr. W. J. Butler has retired as executive officer of the Montana State Livestock Sanitary Board because of ill health, but will continue to coöperate with the board in an advisory capacity. Dr. Butler, an internationally known veterinarian, has been board executive officer and state veterinary surgeon since 1913, and has been director of the International Livestock Exposition at Chicago for several years. He will be succeeded by Dr. H. F. Wilkins, his assistant and member of the department since 1916.

New York

New York City Association.—The regular meeting of the Veterinary Medical Association of New York City was held at the Hotel Pennsylvania on Oct. 6, 1948. The motion picture "Spotlighting the Variety of Interests Shared by Dogs and Mankind" was shown through the courtesy of the Ralston Purina Co. Dr. Victor H. Berliner (Ph.D.), director, Division of Animal Industry, Ortho Research Foundation, Raritan, N. J., spoke on "Fertility and Sterility in the Dog."

s/C. R. SCHROEDER, *Secretary.*

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Lecture Series for Teachers.—The Department of Physiology, New York State Veterinary College, Cornell University, presented during the week of July 5-10 a series of lecture-demonstrations in physiology for teachers of physiology or pharmacology. Thirty-six persons, representing 27 colleges and universities, including most of the veterinary colleges in this country and Canada, attended the sessions. Of those attending, 18 were veterinary physiologists or pharmacologists. A large number of demonstrations suited to lecture-room teaching were given on blood, heart and circulation, urine secretion, respiration, alimentary tract, muscular activity, and nervous system.

Ohio

Dr. DeFosset Retires.—Dr. A. J. DeFosset (OSU '07) has retired from the U. S. BAI after forty-one years with the Department of Agriculture. As head of the U. S. BAI, Dr. DeFosset began his unpublicized war on livestock disease, which resulted in Ohio becoming the fifth accredited state free of tuberculosis. Cattle in the state are still tested every three years to prevent further outbreaks.

A week before he was graduated from Ohio State University, Dr. DeFosset became a meat inspector in the packing plants in Chicago. It was here, and in other cities where he served as meat inspector, that he realized that policies permitting infected livestock to be sold for

public consumption should be prohibited. When he came to Ohio, Dr. DeFosset brought a number of new techniques, and veterinarians came from Sweden, Denmark and other countries to study the methods he used against livestock disease. Twenty-one times he was called into court and enjoined from carrying out test programs. In one lengthy case, six persons were sent to federal prison. Those persons who first hindered the program, later were most cooperative.

At the present time, brucellosis, producer of painful undulent fever in human beings, is the nemesis of the Bureau. The fight against this disease began fourteen years ago, and since that time more than $3,500,000 has been paid to farmers for diseased cattle which have been destroyed. Herds now under official testing number 77,755.

Dr. and Mrs. DeFosset have purchased a house trailer, and plan to tour the country pursuing their hobbies of nature study, fishing, and swimming.

Oklahoma

Tulsa Association.—The Tulsa Veterinary Medical Association held its regular monthly meeting in the Hotel Tulsa on Sept. 24, 1948. Dr. Lewis B. Moe, assistant professor and head of clinics, Veterinary Department, Oklahoma A. & M. College, discussed the expansion and growth of the veterinary faculty. Dr. Kenneth Whitehair, Nutrition Department, presented a paper on animal nutrition emphasizing the importance of colic acid and B_{12} in animal diets.

s/CHARLES S. GREER, *Assistant Secretary.*

Pennsylvania

—Acme Photo

Dr. Otto Stader of Philadelphia and Dr. W. J. Lee, of the School of Veterinary Medicine, University of Pennsylvania, demonstrate the Stader splint used on a valuable 5-year-old horse of Eaglesville, Pa. Breaking its leg in a fall, the owner believed the animal would have to be shot—and so it would but for the Stader splint.

Virginia

—Acme Photo

Dr. W. O. Reed, Warrenton, Va., (left, kneeling) and assistants take x-rays of Stymie's right foot at Monmouth Park Race Track, in New York, July 26. X-rays revealed a fractured sesamoid. The greatest money winning horse in the world, Stymie will be retired from racing permanently.

Washington

Dr. Christensen to Join Faculty.—Dr. John F. Christensen will join the faculty of the College of Veterinary Medicine, State College of Washington, as parasitologist on Jan. 1, 1949. Dr. Christensen received his B.S., M.S., and Ph.D. degrees from the University of California and his D.V.M. from Colorado A. & M. College. He was protozoölogist with the Zoölogical Division and has had teaching experience both at the University of California and at Colorado A. & M. He is now in practice at Prineville, Ore.

s/R. E. NICHOLS, *dean, College of Veterinary Medicine, State College of Washington.*

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New Veterinary Faculty Member.—Dean R. E. Nichols of the College of Veterinary Medicine at Pullman has announced the addition of Russell W. N. Gillespie, Ph.D., to the staff of the bacteriology department. Dr. Gillespie received his undergraduate training at Purdue and his Ph.D. at Yale University.

At Pullman, Dr. Gillespie will teach the technical phases of bacteriology to veterinary students, while Prof. E. C. McCulloch will continue to teach the veterinary phases of the subject.

Wisconsin

Leader in Tuberculin Testing.—The first tuberculin test of cattle west of the Alleghany Mountains was carried out in the University of Wisconsin herd in 1893, *Hoard's Dairyman* recalls (Aug. 10, 1948), in telling of "100 Years of Dairying in Wisconsin." As the result of this testing, 28 cows were slaughtered as infected, leaving the experiment station in possession of only 2 cows. Today, according to the article, Wisconsin ranks first among all states in having the highest number of tuberculin-tested cattle.

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Milwaukee Association.—The monthly meeting of the Milwaukee Veterinary Medical Association was held at the Wisconsin Humane Society on Sept. 21, 1948. Dr. Wayne H. Riser, associate editor of the *North American Veterinarian*, presented a summary of recent work on "Pyometra." At this meeting, Dr. Fred W. Milke took office as president.

S/K. G. NICHOLSON, *Secretary.*

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Northeastern Association.—The eleventh annual meeting of the Northeastern Wisconsin Veterinary Medical Association was held at the Badger Breeders Coöperative Office Building at Shawano on Sept. 23, 1948. A full and entertaining program was presented including a discussion of the township plan of Brucellosis eradication and vaccination.

S/WILLIAM MADSEN, *Secretary.*

FOREIGN

Australia

Veterinary Population and Fields of Work.—There are less than 400 veterinarians in Australia, according to Prof. H. R. Carne of the University of Sydney veterinary school. Divided into fields of work, the percentages are: disease control and extension work, 30; food inspection, 6; teaching, research, and laboratory service, 23; practice in country districts, 17; practice in cities, 15; miscellaneous activities, including commercial, 9.

In a recent address before the Australian Veterinary Association at Sydney, Professor Carne said that among all countries where livestock production comprises a major part of the national economy, Australia is "one of the most backward in providing adequate veterinary services." By way of comparison, he pointed out that before World War II, France and Britain had 100 veterinarians per million large livestock, and the United States had 60 per million, while Australia was provided with only 3 veterinarians per million large animals. One factor that partly offsets this disparity is Australia's large numbers of sheep—a species requiring less veterinary attention than cattle and swine.

During the war, notwithstanding deferments for veterinary students, the number of veterinarians was still less than the need and the demand for them, with the result that now there is a critical shortage. The government needs many more for regulatory work, the livestock industry is relying on veterinary services more than ever before, and dairy companies and research institutes are seeking more veterinaians.

At present, 381 students are undergoing veterinary training at Sydney and 62 at Brisbane, under an accelerated program which has necessitated great expansion in teaching staffs and physical facilities.

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Calfhood Vaccination in Victoria.—Because records on large numbers of animals showed an abortion percentage of only 4.8 for animals vaccinated during calfhood with strain 19, as compared with an abortion percentage of 36.8 in unvaccinated groups, Australian farmers are showing marked enthusiasm for calfhood vaccination against brucellosis.

R. J. de C. Talbot, chief veterinary inspector for the state of Victoria, reports (*Australian Vet. J.*, July, 1948), that about 80,000 calves will be vaccinated in Victoria this year, and the number will be doubled in 1949 and increased each year thereafter until the annual calf crop of 200,000 is being vaccinated.

Due to a shortage of veterinarians, lay personnel are employed for the work, following a course of instruction at the Veterinary Research Institute of Melbourne University. They work under the direction of district veterinary officers and perform their duties in an "entirely satisfactory manner," the author says.

Chile

Dr. Gerlach to Study Foot-and-Mouth Disease.—Under present conditions, Dr. Franz Gerlach was unable to continue his work in Austria and is now associated with Dr. Euguanio Suarez (director) and Dr. Ramon Rodriguez (chief of the Veterinary Division) at the Instituto Bacteriologico de Chile, Casilla 48, Santiago de Chile. At this Institute, Dr. Gerlach will study the virus of Foot-and-Mouth disease.

For twenty-eight years, Dr. Gerlach was director of the Institute of Infectious Animal Diseases in Moedling, Austria. At one time, he was in charge of the rinderpest vaccination program in Turkey, at which time he reorganized the Veterinary Institute and veterinary service in that country. Dr. Gerlach has been a delegate or reporter to the International Office of Epizoötics since 1925. He is the author of numerous works concerning diseases of animals transmitted to man, and is coauthor with Kraus and Schweinburg of a work on Rabies. He has also done extensive research work in cancer.

S/MAURICE W. HALE, *Lt. Col., V.C., U. S. Army.*

England

National Health Service Act.—Enforcement of the National Health Service Act is meeting with complications due to misunderstandings on the part of both the public and the doctors. The Act does not compel a physician to accept any patient he does not desire to serve, nor does it compel any person or family to employ any particular physician. The British Medical Association which has expressed its opposition

to the principles of the Act has, nevertheless, set down printed instructions for the guidance of its members on the main points of the novel departure in the practice of medicine.

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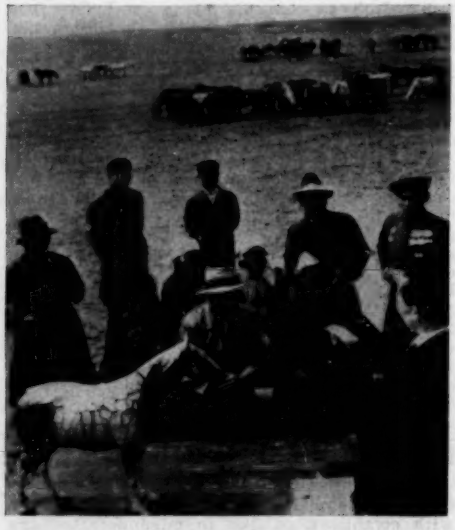
National Health Service.—Writes the London correspondent to the *Journal of the American Medical Association:* "There has come into force in Britain the greatest revolution in the practice of medicine that has ever occurred in the world." Minister of Health Bevan and Prime Minister Attlee are quoted as saying that it is the most comprehensive system of social security ever introduced into any country. Like all activities which have made Britain great, the letter goes on to say, medicine which has progressed on the individualistic system is now placed on a socialistic basis.

France

Exchange Vacation.—Dr. Quétard, 35, married, wishes to receive, for a fortnight, at his home (16 miles from Paris) an American veterinarian and his wife. Thus an opportunity is offered to live with a French practitioner's family, to go with him in his errands, and to make an agreeable and inexpensive visit to Paris and vicinity. This offer is made in order to establish contacts enabling Dr. Quétard, in 1949, to spend a vacation and gain further knowledge in general practice in one of the eastern states of the U. S. Please correspond directly with Dr. Quétard, Vétérinaire, Ecouen, Seine-et-Oise, France.

Mongolia



—*Acme*

Science comes to the backward regions of the Buriat-Mongol Republic as a veterinarian (right), using a dummy horse for his lecture, explains to the natives techniques to be used in the breeding of Thoroughbred horses.

Italy

Canine Brucellosis.—The *Institut Sanita Publica* reported in 1940 that 1 out of every 75 dogs captured around Rome reacted to the agglutination test for brucellosis (bovine) at a titer of 1:50.—*Biological Abstracts, February, 1948.*

New Zealand

Lameness in Sheep After Dipping.—A curious lameness striking sheep after dipping with the new dip, gammexane, brought Veterinary Pathologist H. E. Barbour from England to make an investigation as to the cause. The lameness was traced to swine erysipelas infection contracted from the contaminated solution. Though a potent insecticide, gammexane was found to lack the antiseptic properties of arsenical and phenol dips and, therefore, infected animals contaminated the solution with *Erysipelothrix rhusiopathiae.* The problem was solved by the addition of copper sulfate to the solution.

Russia

Plan to Increase the Number of Horses.—Contrary to the *laissez faire* way of the U.S.A., the U.S.S.R. has launched a five-year plan to rebuild its war-torn horse-breeding industry to the prewar level of 12,900,000 head, on the ground that, despite the mechanization of farming, horses still play, and will continue to play, an important rôle in the rehabilitation of the commonwealth. Republics and districts which are rebuilding their horse industry are complimented, while those which neglect to do so are being criticized. Russia has chained its destiny to the land while others pin their faith to big factories which exhaust the land. Who's right? must be left for future generations to answer.

Scotland

American Pioneers.—An interesting fact revealed by the reading of the periodical veterinary literature of North America is the prominence gained by graduates of Edinburgh and Glasgow, who became leaders in the fields of veterinary education "over there:"

Joseph Hughes (GLAS '82) cofounder of the Chicago Veterinary College, 1883.

James Law (EDIN '57) founder of the New York State Veterinary College, Cornell University, 1894.

C. P. Lyman (New EDIN '74) cofounder of the Veterinary Department, Harvard University, 1881.

Duncan MacEachran (EDIN '61) founder of the Faculty of Veterinary Medicine, McGill University, 1866.

F. Osgood (New EDIN '81) cofounder of the Veterinary Department, Harvard University, 1881.

Andrew Smith (EDIN '61) founder of the Ontario Veterinary College, 1862.

E. W. Printice (EDIN '89) taught veterinary science to agricultural students at Urbana, Ill., and W. H. Dalrymple (GLAS '86) at Baton Rouge, La.

COMING MEETINGS

Cornell Nutrition Conference for Feed Manufacturers. Hotel Statler, Buffalo, N. Y., Nov. 4-5, 1948. F. W. Hill, Rice Hall, Cornell University, Ithaca, N. Y.

Associates, Food and Container Institute. Symposium on yeasts in feeding. Hotel Pfister, Milwaukee, Wis., Nov. 8-10, 1948. Associates, Food and Container Institute, 1849 West Pershing Rd., Chicago 9, Ill.

American Public Health Association, Boston, Mass. Nov. 8-12, 1948. R. M. Atwater, 1790 Broadway, New York City 19, N. Y., executive secretary.

Executive Board of the American Public Health Association. Annual meeting at Boston, Mass., Nov. 8-12, 1948. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, N. Y., executive secretary.

Mississippi Valley Veterinary Medical Association. Hotel Pere Marquette, Peoria, Ill. Nov. 9-10, 1948. W. J. Angerer, Box 23, Atkinson, Ill.

Midwest Small Animal Association. Eleventh annual meeting. Hotel Burlington, Burlington, Iowa, Nov. 18, 1948. W. H. Riser, Box 872, Evanston, Ill., secretary.

Interstate Veterinary Medical Association. Annual meeting. Martin Hotel, Sioux City, Iowa, Nov. 18-19, 1948. H. C. Smith, 2415 W. Solway Ave., Sioux City, Iowa, secretary.

American Society of Animal Production. Annual meeting. Sherman Hotel, Chicago, Ill., Nov. 26-27, 1948. H. M. Briggs, Oklahoma A. & M. College, Stillwater, Okla., secretary.

Research Workers in Animal Diseases of North America, Conference of. Palmer House, Chicago, Ill., Nov. 29, 1948. Dr. W. H. Feldman, Mayo Foundation, Rochester, Minn., secretary.

U. S. Public Health Service. Short Course in Laboratory Diagnosis of Rabies. At the Laboratories of the Communicable Disease Center, Atlanta, Ga., Dec. 6-10, 1948. E. S. Tierkel, U. S. Public Health Service, 605 Volunteer Bldg., Atlanta 3, Ga., acting chief.

Nebraska State Veterinary Medical Association. Annual meeting. Cornhusker Hotel, Lincoln, Nebr., Dec. 8-9, 1948. L. V. Skidmore, College of Agriculture, Lincoln 1, Nebr., secretary.

New York State Veterinary College. Annual Conference for veterinarians. Jan. 5-7, 1949. W. A. Hagan, 320 The Parkway, Ithaca, N. Y., president.

Ohio State Veterinary Medical Association. Annual meeting. Deshler-Wallick Hotel, Columbus, Ohio, Jan. 5-7, 1949. F. J. Kingma, 121 E. Weber Rd., Columbus 2, Ohio.

Wisconsin Veterinary Medical Association. Annual meeting, Park Hotel, Madison, Wis., Jan. 6-7, 1949. B. A. Beach, University of Wisconsin, Madison, Wis., secretary.

California State Veterinary Medical Association. Annual mid-winter conference. San Luis Obispo, Calif., Jan. 10-12, 1949. Charles S. Travers, 16th and Mission Sts., San Francisco, Calif., secretary.

Maine Veterinary Medical Association. Annual meeting. Augusta, Maine, Jan. 12, 1949. S. W. Stiles, Falmouth Foreside, Maine, secretary.

Indiana State Veterinary Medical Association. Annual meeting. Hotel Severin, Indianapolis, Ind., Jan. 13-15, 1949. W. W. Garverick, Zionsville, Ind., secretary.

Intermountain Veterinary Medical Association. Newhouse Hotel, Salt Lake City, Utah, Jan. 17-19, 1949. M. L. Miner, Logan, Utah, secretary.

Michigan State College postgraduate conference for veterinarians. Michigan State College, East Lansing, Mich., Jan. 19-20, 1949. C. S. Bryan, School of Veterinary Medicine, Michigan State College, East Lansing, Mich., dean.

Mississippi State Veterinary Medical Association. Annual meeting. Pinehurst Hotel, Laurel, Miss., Jan. 20-21, 1949. S. A. Cox , Jackson, Miss., secretary.

Illinois State Veterinary Medical Association. Annual meeting. Abraham Lincoln Hotel, Springfield, Ill., Jan. 26-28, 1949. A. G. Misener, 6448 N. Clark St., Chicago 26, Ill., secretary.

New Jersey State Veterinary Medical Association. Annual meeting. Hotel Hildebrecht, Trenton, N. J., Feb. 3-4, 1949. J. R. Porteus, p.o. box 938, Trenton, N. J., secretary.

Southeast Missouri Veterinary Medical Association. Spring meeting. Farmington, Mo., April 13, 1949. F. A. Stepp, 405 North St., Sikeston, Mo., secretary.

American Veterinary Medical Association. Annual convention. Book-Cadillac and Statler Hotels, Detroit, Mich., July 11-14, 1949. J. G. Hardenbergh, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

Colorado State Veterinary Medical Association. Annual meeting. Shirley Savoy Hotel, Denver, Colo., Sept. 29-30, 1949. W. P. Blake, 2410 8th Ave., Greeley, Colo., secretary.

Chicago Veterinary Medical Association. Palmer House, Chicago, Ill., the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.

Houston Veterinary Medical Association, Houston, Tex., the first Thursday of each month. Edward Lepon, Houston, Tex., secretary-treasurer.

Keystone Veterinary Medical Association, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., the fourth Wednesday of each month. Raymond C. Snyder, N. W. Cor. Walnut St. and Copley Rd., Upper Darby, Pa., secretary.

Massachusetts Veterinary Association. Hotel Statler, Boston, Mass., the fourth Wednesday of each month. C. L. Blakely, Angell Memorial

Animal Hospital, 180 Longwood Ave., Boston, Mass., secretary-treasurer.

New York City Veterinary Medical Association. Hotel Pennsylvania, New York, N. Y., the first Wednesday of each month. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.

Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.

Saint Louis District Meetings. St. Louis, Mo., the first Friday of June and November, W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

Jefferson County Veterinary Society, Louisville, Ky., the first Wednesday evening of each month. F. M. Kearns, 3622 Frankfort Ave., Louisville 7, Ky., secretary.

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Foreign Congresses

Seventh Pacific Science Congress. New Zealand, Feb. 2-22, 1949. Mr. Harold J. Coolidge, 2101 Constitution Ave., Washington 25, D. C., executive secretary.

Fourteenth International Veterinary Congress. London, England, Aug. 9-14, 1949.

General Secretary, Permanent Committee: Prof. L. de Blieck, Kwartellaan 51, The Hague, Netherlands.

General Secretary, Organizing Committee: Mr. W. G. R. Oates, 9 Red Lion Square, London, W. C. 1, England

Secretary, United States Committee: J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill.

VETERINARY MILITARY SERVICE

Army Veterinary Research.—The veterinary division of the Army Medical Department Research and Graduate School is currently engaged in the following research projects, according to an announcement from The Surgeon General's office: study of the reaction between formaldehyde and vaccine under usual conditions of manufacture and storage; investigation of the requirements for keeping homogenized milk in a frozen state without loss of flavor or nutritive value; extension of studies on the possible enzymatic activity in chicken-embryo-type virus vaccines, such as equine encephalomyelitis and Japanese encephalitis vaccines, and their possible relation to the potency and keeping quality of the finished product. Also under study are the causative agent of equine influenza, the pathology of equine periodic ophthalmia, and laboratory diagnosis of equine infectious anemia and leptospirosis.

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V.C. Represented at National Sanitation Clinic.—Major Ralph O. Anslow, V.C., of Fort Sam Houston, Texas, represented the Army Veterinary Corps at the first National Sanitation Clinic, held at the University of Michigan, Ann Arbor, June 22-25, 1948. Nearly 500 delegates attended, including representatives of most of the state health departments. The clinic, to be an annual event, was designed to provide a common meeting ground for food-industry leaders and principal public health agencies of the United States and Canada. Its aim is to arrive at standard sanitary practices in the management of food industries.

MARRIAGE

Dr. Paul Brown (UP '44), Hazelton, Pa., to Miss Thelma Passmore, Oct. 2, 1948, at Wilmington, Del.

BIRTHS

To Dr. (COLO '46) and Mrs. William I. Lipe, Fowler, Colo., a daughter, Barbara Susan, on April 19, 1948.

Dr. (UP '48) and Mrs. W. H. Grau, 3316 W. 20th St., Little Rock, Ark., announce the birth of William Henry Grau III on Aug. 4, 1948.

To Dr. (COLO '37) and Mrs. L. S. Poley, Limon, Colo., a daughter, Susan Jean, on Aug. 14, 1948.

Dr. (UP '45) and Mrs. Frank L. Hultslander, Parkesburg, Pa., announce the birth of Ruth Ann on Aug. 25, 1948.

To Dr. (COLO '43) and Mrs. Richard E. Koenig, Aloha, Ore., a son, Richard E., Jr., on Aug. 26, 1948.

Dr. (UP '42) and Mrs. David K. Detweiler, Philadelphia, Pa., announce the birth of a daughter, Ellen Carolyn, on Sept. 7, 1948. Dr. Detweiler is assistant professor of pharmacology, School of Veterinary Medicine, University of Pennsylvania.

To Dr. (API '43) and Mrs. Forrest E. Henderson, 101 20th Ave., San Francisco, Calif., a daughter, Susan Cheryl, on Sept. 16, 1948.

Dr. (API '37) and Mrs. James M. McKinnon, Sanford, N. Car., announce the birth of a son, Griggs Robert, on August 4, 1948.

To Dr. (MSC '41) and Mrs. M. H. Sherber, 1608 Avondale, Muskogee, Okla., a son, Steven Fred, on Sept. 29, 1948.

DEATHS

★**Clarence L. Adams** (AMER '96), 75, Danielson, Conn., died on Sept. 12, 1948, after a brief illness. Dr. Adams had served Danielson for 52 years, and in spite of his illness, had continued to answer calls to the night before his death. He was a member of the AVMA.

★**Frederick Boerner** (UP '12), 59, died suddenly at his home in Drexel Hill, Pa., Sept.

16, 1948. Although possessing only the veterinary degree, he had been a member of the medical faculty at the University of Pennsylvania for twenty-five years, having become associated with Dr. John A. Kolmer (M.D.) at the Graduate Hospital because of his great interest and abilities in the fields of bacteriology and serology. At the time of his death, Dr. Boerner was assistant profesor of bacteriology in the School of Medicine and associate professor of clinical bacteriology in the Graduate School of Medicine at the University.

After receiving his veterinary degree, he practiced for a time in Cape May, N. J., his home town, only to encouter a highly fatal outbreak of "forage poisoning" as it was then diagnosed but which was probably the equine encephalomeylitis of today. He relinquished his practice and became associated with the laboratory of the Pennsylvania Livestock Sanitary Board, of which he was made director during World War I. He left this position in 1923 to enter work in the medical field.

Dr. Boerner was well known and highly regarded in both veterinary and medical circles, particularly in the field of his specialty. He was one of the first to report the allergic nature of quinine, based on observations of his own sensitivity to that drug. He was coauthor with Dr. Kolmer of "Approved Laboratory Techinc," a classic reference text on laboratory methods, and just prior to his death had completed editing a collaborative book on "Normal Values in Medicine" which is soon to be published. He was also consultant bacteriologist to the Pennsylvania Department of Health and director of the laboratory of the American Stomach Hospital. He had been a member of the AVMA for thirty-five years, and was also a member of the Pennsylvania State Veterinary Medical Association, the New York Academy of Science, the American Society of Clinical Pathology, and the Philadelphia County Medical Society. He was also a Mason.

Surviving are his wife, two sons, Frederick, Jr., and Robert, and four daughters, the Misses Doris, Joan, and Nancy Boerner, and Mrs. Eleanor Walack.

★**H. L. Campbell** (KCVC '15), 58, Tuscola, Ill., died of a heart attack on Sept. 9, 1948. Dr. Campbell was a member of the Illinois Veterinary Medical Association and of the AVMA.

★**George S. Glover** (USCVS '16), 61, Los Angeles, Calif., Died on Sept. 30, 1948. Dr. Glover had been a member of the AVMA for thirty years.

Ralph F. Kornman (UP '31), Rochester, Pa., died June 12, 1948.

J. W. Meyers (KCVC '17), Hendley, Neb., died Sept. 5, 1947.

Frank W. Miller (ST JOS), 61, Los Angeles, Calif., died on Oct. 5, 1948. After receiving his degree of D.V.M., Dr. Miller entered BAI service and soon became assistant chief of the Chicago station, largest government meat inspection station in the U.S. In 1921, following passage of the Packer and Stock Yards Act by Congress, he was chosen as assistant to the chief of the Packer and Stock Yards Administration in Washington, D.C. Later, he was promoted to chief of that agency and served in that capacity until late in 1945 when, at his own request, he was made regional western market supervisor for the department with headquarters at the Los Angeles stockyards. Surviving is his wife, Mrs. Celia Miller.

★**Colonel Nathan M. Neate** (CORN '17), 53, Ft. Bragg, N. Car., died Aug. 22, 1948, at Walter Reed General Hospital, Washington, D. C., where he had been a patient for several months. Colonel Neate was commissioned a second lieutenant in the Veterinary Corps, Regular Army July 16, 1917. He served with the AEF as commanding officer, veterinary hospital No. 19, from September, 1918, to June, 1919. He resigned his commission on Aug. 13, 1919, but re-entered the Army in November, 1920, and was promoted through the grades, obtaining his colonelcy on Nov. 24, 1944. Colonel Neate was on duty at Fort Bragg, N. Car., when he entered the hospital. He was a member of the AVMA.

★**Howard M. Newton** (OSU '05), 66, Charleston, W. Va., died of a heart attack Aug. 17, 1948. At the time of his death, Dr. Newton was inspector in charge of the U. S. BAI in West Virginia. He had been in government service since his graduation in 1905 and in January of this year had been cited by Dr. B. T. Simms, chief of the U. S. BAI, for distinguished service during the past forty years with animal disease control work. Dr. Newton was admitted to the AVMA in 1918.

★**Michael John O'Donnell** (SAN FRAN '16), San José, Calif., died Jan. 17, 1948. Dr. O'Donnell was a member of the AVMA.

★**Ray H. Pease** (COLO '27), 53, Cheyenne, Wyo., died on July 5, 1948. Dr. Pease was a member of the AVMA.

★**Howard F. Roberts** (CVC '16), 57, San Diego, Calif., died in 1948. Dr. Roberts headed the San Diego County Livestock Department as county livestock inspector, and was also a member of the California State Board of Examiners in Veterinary Medicine. He was a member of the AVMA.

★**James L. Smith** (OSU '31), 44, Beverly Hills, Calif., died on May 29, 1948. Dr. Smith was admitted to the AVMA in 1935.

★**Walter C. Snyder** (CORN '18), 56, Buffalo, N. Y., died Aug. 24, 1948, while vacationing in the Adirondacks. A veterinarian with the Dairymen's League Coöperative Association for twenty-seven years, he had been stationed in Buffalo fourteen years. Dr. Snyder had been a member of the AVMA since 1919.

C. H. Speers (ST JOS '10), Stanberry, Mo., died June 5, 1948.

★Indicates members of the AVMA.

Proceedings, Eighty-Fifth Annual Meeting American Veterinary Medical Association San Francisco--August 16-19, 1948

Section Meetings

(The Opening Session, the General Sessions, and the Sessions of the House of Representatives were published in the October JOURNAL.*)*

Section on General Practice

Tuesday Morning, Aug. 17, 1948

The first session of the Section on General Practice, held in connection with the Eighty-fifth Annual Meeting of the American Veterinary Medical Association, at the Palace Hotel, San Francisco, Calif., Aug. 17, 1948, convened at 9:00 a.m., Dr. John Britton, Willits, Calif., chairman, presiding.

CHAIRMAN BRITTON: The program calls for a few opening remarks by the chairman. I appreciate the coöperation of the men on this program, and we will do our best to give you a good program, and let it speak for itself.

Dr. Wagaman of Indiana has been an efficient secretary. Dr. Wagaman, do you have a report?

SECRETARY WAGAMAN: Dr. Britton, Ladies and Gentlemen: I have nothing to add to the minutes of the meeting as they were published in the November, 1947, issue of the JOURNAL.

However, I would like to say that Dr. Britton and I have worked together on the program. We have had wonderful coöperation of all the members who have been asked to take part in the program. I want to thank you for the honor of being asked to serve as secretary of the section and appreciate working with Dr. Britton.

CHAIRMAN BRITTON: The first item on the morning's program is the motion picture on diseases of lambs, to be presented by Dr. Floyd Cross of Colorado State College. Dr. Cross.

(Dr. Cross showed his motion picture.)

CHAIRMAN BRITTON: Thank you very much, Dr. Cross, for that very remarkable picture.

The next paper this morning is Dr. Bartlett's paper on "Trichomoniasis." Unfortunately, Dr. Bartlett is unable to be here but he has sent a wire recording of his address, and that will be presented now.

. . . The talk of Dr. D. E. Bartlett was presented by wire recording. . . . (Applause.) (To be published.)

CHAIRMAN BRITTON: Next on the program is an address by Dr. Madsen on "Nutrition of Farm Animals." Dr. Madsen.

. . . Dr. L. L. Madsen read his paper. . . . (Applause.) (To be published.)

CHAIRMAN BRITTON: Thank you very much, Dr. Madsen, for that interesting paper.

Will the members of the pediatrics panel come to the platform, please? Dr. Young, Dr. Gibbons, Colonel Jennings, who is replacing Major Trum on the diseases of foals, and Dr. Cross.

Our purpose in presenting this panel on veterinary pediatrics is to try to get the members of the veterinary profession a little more interested in diseases of the newborn.

We feel that the tremendous death loss that accompanies the rearing of farm animals is much too great. There is a terrific death loss in calves, for example. I am sure that Dr. Young will give some figures on death loss in baby pigs that will just take your hats off. Of course, there are obviously too many foals that die within the first few days.

Major Trum is unable to be here to talk on diseases of foals, but he turned his work over to Colonel Jennings, also of the remount department, who is conversant with Trum's work, and all of the work on diseases of foals.

Dr. Gibbons will talk on diseases of calves; Dr. Young on diseases of baby pigs, and Dr. Cross on diseases of lambs.

Colonel Jennings, you may lead off.

. . . Colonel Jennings read the paper prepared by Major Bernard F. Trum. . . . (Applause.) (To be published.)

CHAIRMAN BRITTON: Thank you, Colonel Jennings, for your effective delivery of Major Trum's address.

Dr. Gibbons will talk on diseases of calves.

. . . Dr. Gibbons read his paper. . . . (To be published.)

CHAIRMAN BRITTON: Thank you very much, Dr. Gibbons.

We have heard a little bit about the treatment of these individual calves and foals. Now we come to the baby pigs and the baby lambs which, unless they are from valuable purebred herds, must be treated and handled as groups.

Dr. Cross, have you a few words to say about diseases of baby lambs?

. . . Dr. Cross read his paper. . . . (Applause.) (To be published.)

CHAIRMAN BRITTON: Thank you, Dr. Cross. Dr. Young, how about you?

DR. BAKER (Riverside, Calif.): I think, in fairness to Dr. Young and the importance of the subject, we ought to hold his paper over until immediately after the film this afternoon. I do not believe it is fair to these men who have prepared papers to rush it through. I will put that in the form of a motion.

DR. W. L. BOYD: Second the motion.

CHAIRMAN BRITTON: Supposing we start at one o'clock with the picture. All right, let's start at one o'clock.

. . . The meeting recessed at 12:10 p.m. . . .

Section on General Practice

Tuesday Afternoon, Aug. 17, 1948

The second session convened at 1:10 p.m., Chairman Britton presiding.

CHAIRMAN BRITTON: We have the motion picture prepared by Dr. Erickson on "The Small Hospital in General Practice." Dr. Erickson!

. . . Dr. Erickson showed his movie. . . . (Applause.)

CHAIRMAN BRITTON: Thank you very much, Dr. Erickson, for that entertaining and interesting picture. I am sure we will hear more from you when we get into the panel on large animal hospital practice.

Now, by popular demand, we have the pediatrics panel back again. Will those gentlemen please come forward? Dr. Young has a few words on diseases of baby pigs.

. . . Dr. G. A. Young read his paper. . . . (Applause.) (To be published.)

CHAIRMAN BRITTON: The meeting is now open for nominations for officers for this Section on General Practice for next year's meeting.

DR. C. HARVEY SMITH (Crown Point, Ind.): I would like to place in nomination as chairman of this Section on General Practice Dr. A. E. Erickson of Charlotte, Mich.

CHAIRMAN BRITTON: Dr. Erickson has been nominated as chairman of the General Practice Section next year. Are there any other nominations? If not, the nominations are closed.

Now we need a secretary.

DR. A. G. DANKS (Ithaca, N. Y.): I place in nomination A. G. Madden of Madeira, Ohio.

CHAIRMAN BRITTON: Dr. A. G. Madden of Ohio has been nominated. If there are no further nominations, we will turn those two names over to the incoming president for his consideration, for appointment next year.

Dr. Baldwin is our next speaker. (Absent.) Dr. Baldwin does not seem to be here.

While waiting for Dr. Baldwin, will Dr. Coffee give his paper on "Anesthesia and Restraint of Large Animals."

. . . Dr. W. M. Coffee read his paper. . . . (Applause.) (To be published.)

CHAIRMAN BRITTON: Thank you very much, Dr. Coffee, for a practical and useful paper.

I see Dr. Baldwin has returned. We will now have his discussion of the vaccination for ovine enterotoxemia.

. . . Dr. E. M. Baldwin read his paper. . . . (Applause.) (To be published.)

CHAIRMAN BRITTON: Thank you, Dr. Baldwin. I am sure many California practitioners are familiar with this problem of enterotoxemia, and we were certainly interested to hear what you had to say.

The next paper will be by Dr. Schlotthauer on "Laboratory Aids in the Diagnosis of Diseases." Dr. Schlotthauer.

. . . Dr. Carl F. Schlotthauer read his paper. . . . (Applause.) (To be published.)

CHAIRMAN BRITTON: Thank you very much, Dr. Schlotthauer. Dr. Frick has informed me that he is going to bring out the place of the clinical laboratory in relation to large animal hospital practice. So, you may be prepared for discussion at that time.

Now I will turn the meeting over to Dr. E. J. Frick, moderator, and his panel, for a discussion on Large Animal Hospital Practice. . . . The panel was presented. . . . (To be published.)

CHAIRMAN BRITTON: Dr. Collinson of Chowchilla has consented to favor us with his views on "Staphylococcic Mastitis."

. . . Dr. Roger W. Collinson read his paper. . . . (Applause.) (To be published.)

DR. COLLINSON: I do not prepare this product; it is a commercial product that I purchase from a biological house. (Applause.)

CHAIRMAN BRITTON: Thank you very much, Dr. Collinson. If any of you would like to ask Dr. Collinson questions about his work, you may do so. I am sure he will be available at the front of the room for some time after the meeting.

That concludes our program for today. Thank you for your attendance and attention.

. . . The meeting adjourned at 4:40 p.m. . . .

Section on Small Animals

Wednesday Morning, Aug. 18, 1948

The first session of the Section on Small Animals, held in connection with the Eighty-fifth Annual Session of the American Veterinary Medical Association, at the Palace Hotel, San Francisco, Calif., Aug. 17, 1948, convened at 9:00 a.m., Dr. E. C. Jones, Beverly Hills, Calif., chairman of the Section, presiding.

CHAIRMAN JONES: The first paper on our program is "Clinical Cases, Illustrated," by Dr. J. E. Greene. Dr. Greene is head of the Department of Animal Surgery at Alabama Polytechnic Institute.

. . . Dr. Greene read his paper and showed his movie. . . . (Applause.) (To be published.)

CHAIRMAN JONES: Next on our program is Dr. J. E. Craige, Seaside, Calif., who has done a lot of work on intestinal conditions. I want to introduce Dr. J. E. Craige.

. . . Dr. Craige read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JONES: I see by the program that I made a faux pas, because I was supposed to welcome you ladies and gentlemen. If you will bear with me, I will do the best I can to sandwich it in right now.

As chairman of the Small Animal Section, I most cordially welcome you to our section. I also want to express the appreciation of the Association to those who are participating in our program.

We have been attempting to the best of our ability, with the coöperation of the executive secretary's office, to give you a program which is enlightening, which will give you something to think about, something new, something that you can take home and use in your practice in the future.

We sincerely hope that you will not only enjoy the fellowship of your colleagues while here in San Francisco but that you will take home, as I said before, something really worthwhile—and make it a most pleasant and profitable convention.

Dr. Groth would also like to comment on the work he has been doing.

SECRETARY GROTH: My report is brief. I just want to add my word of thanks to those given for the splendid coöperation in getting this program together.

CHAIRMAN JONES: Our next speaker will be Dr. D. L. Coffin of Angell Memorial Hospital. Dr. Coffin has given us other papers. They have always been interesting and instructive. I present Dr. Coffin.

. . . Dr. Coffin read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JONES: We have time for about two questions. . . . Our next speaker will be Dr. P. J. Hanzlik who is professor of pharmacology at the School of Medicine, Stanford University, San Francisco.

I take pleasure in introducing Dr. Hanzlik. . . . Dr. Hanzlik read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JONES: Thank you, Dr. Hanzlik. That was a most interesting and constructive paper. It is a great pity we do not have more time. I hope you will give us a raincheck and come back when we do have more time.

Our next speaker gave a paper at our last state meeting in San Diego. We were all much impressed and enthusiastic about the paper, and we are fortunate in having him come to us at this time.

Dr. Townsend flew down this morning and he will fly back this afternoon. We are taking a lot of his valuable time. I take pleasure in introducing Dr. Townsend at this time. (Applause.)

. . . Dr. Townsend read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JONES: This afternoon we will start at two o'clock.

. . . The meeting recessed at 12:35 p.m. . . .

Section on Small Animals

Wednesday Afternoon, Aug. 18, 1948

The second session convened at 2:00 p.m., Chairman Jones presiding.

CHAIRMAN JONES: The meeting will come to order.

Our first speaker is Dr. Lloyd C. Moss of Fort Collins, Colo. He is professor of veterinary medicine at Colorado A. & M. College. Dr. Moss. (Applause.)

. . . Dr. Moss read his paper. . . . (To be published.)

CHAIRMAN JONES: Any qestions? If not, I have been instructed by the office of the executive secretary to call for nominations for officers for our coming meeting in Detroit. This is not an election, it is merely a nomination. We want to be sure, when we nominate the chairman, that he will be present at our coming meeting. I will now open the meeting for nominations for chairman.

DR. CHARLES W. BOWER (Topeka, Kan.): I wish to place in nomination Dr. Stephen R. Elko of Detroit, Mich.

CHAIRMAN JONES: Dr. Elko of Detroit, Mich., has been nominated. Do I hear another nomination?

We will pass on to nominations for secretary. Do I hear nominations for secretary? Don't be bashful. Let's see if we cannot help Dr. Hurt. Well, we cannot waste time. We have a full program, so we will have to pass the buck to Dr. Hurt.

Our next topic is "Observations in Treating Dogs for Dirofilaria Immitis," by Dr. F. J. Kingma of Columbus, Ohio.

. . . Dr. Kingma read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JONES: Thank you, Doctor.

Our next speaker will be Dr. G. W. Rawson of Summit, N. J., on "Allergy and Antihistaminic Therapy in Veterinary Practice."

. . . Dr. Rawson read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JONES: Any questions or comments? If not, I wish to thank Dr. Rawson for his spendid presentation.

Dr. Siegmund will now present his paper on "An Experimental Basis for Amino Acid Therapy in Canine Practice." Dr. Siegmund is from New York.

. . . Dr. Siegmund read the paper prepared by himself and Dr. E. J. Morrison. . . . (Applause.) (To be published.)

CHAIRMAN JONES: Are there any questions that you would like to ask Dr. Siegmund? If not, thanks for your presentation.

The next speaker will be Dr. Stader. . . . Dr. Stader read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JONES: Thank you, Dr. Stader.

It is a pleasure and an honor to introduce Dr. Pottenger who has done a good deal of work for human beings in cats, which I am sure will benefit us a great deal in our practice. The title of his paper is "Results of Feeding Heat-Processed Dietary of Man to Experimental Animals, with Special Reference to skeletal changes."

. . . Dr. Pottenger read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JONES: Dr. Pottenger, I want to thank you most heartily for your wonderful presentation. I am awfully sorry the rest of the men and women were not present, because, really and truly, it was something worth while.

Dr. Pottenger has been ill. He was kind enough to come up and talk to us. We all feel deeply indebted to him. Thank you, Dr. Pottenger.

We are adjourned. (Applause.)

. . . The meeting adjourned at 5:45 p.m. . . .

Section on Surgery and Obstetrics

Wednesday Morning, Aug. 18, 1948

The first session of the Section on Surgery and Obstetrics, held in connection with the Eighty-fifth Annual Meeting of the American Veterinary Medical Association, held at the Palace Hotel, San Francisco, Calif., Aug. 18, 1948, convened at 8:30 a.m., Dr. H. W. Johnson, Fort Collins, Colo., presiding.

CHAIRMAN JOHNSON: I now declare the Section on Surgery and Obstetrics in session. It is customary to make recommendations to the president of the AVMA for chairman and secretary for next year. This will come up this afternoon at 1:30, following the picture by Dr. Frank on surgical technique.

Next year, the meeting is at Detroit, and it would be fitting to select a chairman and a secretary from that section of the country.

The first order of business this morning is the report of the secretary.

SECRETARY DANKS: Mr. Chairman and members of the section: This report is very brief.

. . . Dr. Danks read his paper. . . .

CHAIRMAN JOHNSON: Thank you, Dr. Danks. Dr. Danks has done an outstanding job, and I wish to thank him for his work. I know it is a terrific job arranging a program of this type.

Our first paper is entitled "Endocrinology and Its Relation to Reproduction," by Dr. G. H. Hart of Davis, Calif. Dr. Hart.

. . . Dr. Hart read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JOHNSON: Thank you, Dr. Hart.

CHAIRMAN JOHNSON: We must proceed with our next paper, which is entitled "Ten Years of Horse Breeding in the Army," by Col. W. E. Jennings, Washington, D. C.

. . . Colonel Jennings read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JOHNSON: Thank you, Colonel Jennings.

CHAIRMAN JOHNSON: Our next paper is by Major T. C. Jones of Washington, D. C., entitled "Riboflavin and the Control of Periodic Ophthalmia."

. . . Colonel Jones showed slides, with comments. . . . (Applause.) (To be published.)

CHAIRMAN JOHNSON: Thank you, Major Jones.

The next paper on our program this morning

is by Dr. J. N. Frost of Ithaca, N. Y., on tattooing of the Thoroughbred and the prevention of fraud.

. . . Dr. Frost read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JOHNSON: Thank you, Dr. Frost, for this most interesting discussion on tattooing of Thoroughbreds.

We will proceed with the next and last paper on this morning's program, which will be given by Dr. J. E. Peters of East Pasadena, Calif., on "Fractures of the Third Phalanx and Sesamoids in the Race Horse."

. . . Dr. Peters read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JOHNSON: Are there other questions? This concludes our program for this morning.

. . . The session adjourned at 12:00 noon. . . .

Section on Surgery and Obstetrics

Wednesday Afternoon, Aug. 18, 1948

CHAIRMAN JOHNSON: We will proceed with the afternoon's program. First, we have a motion picture, "Surgical Technique," by Dr. Frank of Manhattan, Kan.

. . . Dr. Frank showed his motion picture, with discussion. . . . (Applause.) (To be published.)

CHAIRMAN JOHNSON: Thank you, Dr. Frank.

CHAIRMAN JOHNSON: Next on the agenda will be nomination of officers for next year. The section is now open for nominations for the chairman of next year's section.

Next year the meeting will be in Detroit, and the present officers of this section feel that we should select men from that area to serve as chairman and as secretary for this next year. year.

DR. F. B. YOUNG: I nominate C. Harvey Smith of Indiana.

CHAIRMAN JOHNSON: Dr. C. Harvey Smith of Indiana has been nominated. Are there any other nominations?

. . . Motion made and seconded that nominations be closed. . . .

CHAIRMAN JOHNSON: It isn't necessary to vote on this. These nominations are merely made, and nominations are turned over to the president for his consideration.

Nominations next in order will be for secretary for the next year.

DR. HOWARD: I nominate Dr. E. H. Woelffer.

CHAIRMAN JOHNSON: Dr. Woelffer of the University of Illinois has been nominated to act as secretary. Are there any other nominations?

. . . Motion made and seconded that nominations be closed. . . .

CHAIRMAN JOHNSON: Gentlemen: These nominations then will be turned over to the incoming president.

The first paper this afternoon is by Dr. G. R. Raps of Ames, Iowa, entitled "The Rôle of the Veterinarian in an Artificial Insemination Program."

. . . Dr. Raps read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JOHNSON: Thank you, Dr. Raps.

CHAIRMAN JOHNSON: The next paper this afternoon is by Dr. F. B. Young of Waukee, Iowa, "Dystocia in the Sow."

. . . Dr. Young read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JOHNSON: Thank you, Dr. Young for this presentation.

The next subject for discussion is by W. M. Thorning and E. M. Gildow, both of Carnation, Wash.—"Studies on Reproduction in Cattle."

DR. E. M. GILDOW: I notice the subject for this discussion is "Studies on Reproduction in Cattle." That is a pretty broad subject, and we have therefore cut it down to a single phase of this problem, the title of this paper being "Retained Placentas and Breeding Efficiency."

. . . Dr. Gildow read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JOHNSON: The next paper, "The Form, Development, and Topography of the Stomach of the Ox," will be given by Dr. J. D. Grossman of Columbus, Ohio.

. . . Dr. Grossman read his paper. . . . (Applause.) (To be published.)

CHAIRMAN JOHNSON: Are there any questions? Gentlemen, this concludes our program on surgery and obstetrics. I wish to extend my appreciation for your attention today. I declare the Section on Surgery and Obstetrics officially closed.

. . . The session adjourned at 4:30 p.m. . . .

Section on Research

Tuesday Morning, Aug. 17, 1948

The first session of the Section on Research, held in connection with the Eighty-fifth Annual Meeting of the American Veterinary Medical Association, held at the Palace Hotel, San Francisco, Calif., Aug. 17, 1948, convened at 9:00 a.m., Dr. J. M. Murphy, Ithaca, N. Y., chairman, presiding.

. . . Dr. J. O. Schnautz, Corvallis, Ore., presented a motion picture, "Some Types of Forage Poisoning in Oregon Cattle and Sheep." . . .

CHAIRMAN MURPHY: It will take only a brief look at a watch to know that we are already behind time. Aside from the quality of the presentations the thing we are concerned with is to keep on time.

It has been a great pleasure to work with Dr. Schalm in the preparation of the program. I only need tell you that we agreed to divide the states into half, eastern and western, and work our respective halves to show you that Dr. Schalm has done a lion's share of the preparation of the program, and I am sure he warrants our best regards for it.

The speakers are requested to stay within a thirty-minute period, and if possible to limit the presentation to approximately twenty minutes so that discussion and questions following will not go over the half hour. If we are running ahead of time that will lengthen it somewhat; if behind, you may have to shorten it.

Dr. Schalm may have a few remarks to make at this time. I will call on him to make his report.

SECRETARY SCHALM (Berkeley, Calif.): The secretary does not have a formal report to make. However, Dr. Murphy made some kind remarks in connection with my efforts. I assure you he has carried his share of the work. It was carried equally by both of us.

I want to thank all who helped to arrange the program. They got the titles in on time and the abstracts in on time, making it delightful to arrange this program. We'll now proceed with the program.

CHAIRMAN MURPHY: I forgot to mention just one thing. If at the end of the presentation anyone wishes to ask a question or enter the discussion, please rise, be recognized, and state your name and home state as clearly as possible so the secretary may get an accurate record.

The first paper to be presented is "The Rôle of Plasma Fractions in Passive Immunization and Treatment" by Dr. H. S. Cameron, Davis, Calif.

. . . Dr. Cameron read his paper. . . . (Applause.) (To be published.)

CHAIRMAN MURPHY: Thank you, Dr. Cameron. Any questions from the floor? We have at least five minutes to devote to such. If there are not, a few announcements will be made.

. . . Chairman Murphy made some announcements. . . .

CHAIRMAN MURPHY: The next paper is "The Epidemiology of Vibrionic Abortion of Sheep" by Drs. R. W. Lindenstruth, B. Q. Ward, and J. B. Ashcraft of Laramie, Wyo. Dr. Lindenstruth, I believe, will present the paper.

. . . Dr. Lindenstruth read the paper. . . . (Applause.) (To be published.)

CHAIRMAN MURPHY: Are there any further questions on Dr. Lindenstruth's presentation? (There was no response.)

The next presentation will be able to use the extra time. It is entitled "Epidemiology of Mastitis—the Relative Importance of Exposure and Age in the Spread of Streptococcus Agalactiae Infection" by Drs. Ormsbee and Schalm of Berkeley, to be presented by Dr. Ormsbee.

. . . Dr. Ormsbee read the paper. . . . (Applause.) (To be published.)

CHAIRMAN MURPHY: The next paper is entitled "Idiopathic Hemoglobinuria in Cattle," by Dr. Pistor from Tucson, Ariz.

. . . Dr. Pistor read his paper. . . . (Applause.) (To be published.)

CHAIRMAN MURPHY: We will have to move along as we are ten minutes late. Next is "The Control of Enterotoxemia in Feedlot Lambs," by Drs. A. W. Deems, Rue Jensen, and Floyd Cross, of Ft. Collins, Colo. Dr. Deems will present the paper.

. . . Dr. Deems read the paper. . . . (Applause). (To be published.)

CHAIRMAN MURPHY: We will now adjourn for lunch.

. . . The meeting adjourned at 12:15 p.m. . . .

Section on Research

Tuesday Afternoon, Aug. 17, 1948

The second session convened at 1:30 p.m., Chairman Murphy presiding.

CHAIRMAN MURPHY: The first speaker is Dr. McCulloch on "The Use of Synthetic Anionic Detergents in Veterinary Medicine." Dr. McCulloch.

. . . Dr. McCulloch read his paper. . . . (Applause.) (To be published.)

CHAIRMAN MURPHY: Thank you, Dr. McCulloch.

The next order of business is the nomination for section officers. As I understand, we merely nominate, make suggestions; one or more individuals for each position, chairman and secretary, and from those nominations the president makes an appointment.

We then are open for nominations of one or more individuals for the position of chairman of the Research Section for the meeting to be held next year somewhere in the Middlewest.

DR. THORP: I would like to see this group continue with the idea of nominating the present secretary as chairman so that he can continue over for the meeting next year. Therefore, I would like to nominate Dr. Schalm for the meeting next year.

CHAIRMAN MURPHY: Thank you, Dr. Thorp. I don't believe a second is necessary.

Further nominations are in order.

DR. HAGE (Calif.): I would like to move the nominations be closed.

CHAIRMAN MURPHY: It is moved the nominations be closed. I believe we require a second.

DR. GILDOW: Second the motion.

. . . The motion was voted upon and carried. . . .

CHAIRMAN MURPHY: None opposed.

We are now open for nominations for secretary. Apparently Dr. Thorp has scared everyone with the suggestion that the present secretary be moved to chairman. They are afraid they will be chairman the following year. (There was no response.) We had hoped to receive at least one nomination. Of course, if none are made the President will appoint one.

DR. HINSHAW (Calif.): I'd like to nominate Dr. C. C. Morrill from the University of Illinois.

CHAIRMAN MURPHY: Dr. Morrill from the University of Illinois is nominated for the secretaryship.

Any further nominations?

DR. HINSHAW: I move the nominations be closed.

DR. HAGE: Second the motion.

CHAIRMAN MURPHY: It is moved and seconded that the nominations be closed and that the secretary cast a unanimous ballot for Dr. Morrill. We shall do so.

Next on our program is "The Effect of Environment on the Physiological Well-Being of Swine" by Drs. Heitman and Hughes of Davis, Calif. Dr. Heitman, I believe is to present the paper.

. . . Dr. Heitman read the paper. . . . (Applause.) (To be published.)

CHAIRMAN MURPHY: We will get right along to "The Study of Fecal Androgens in the Cystic-Ovary Cow" by Dr. R. B. Casady of Davis, Calif.

DR. CASADY: The title should be changed. Instead, I would like to modify it to "A study of Some Factors Modifying Fecal Excretions in the Cystic-Ovary Cow."

. . . Dr. Casady read his paper. . . . (Applause.) (To be published.)

CHAIRMAN MURPHY: Thank you very much, Dr. Casady.

We are running pretty well on time. There is opportunity for a question or two if you so wish. (There was no response.)

The next paper is entitled "Ulcerative Dermatosis of Sheep" by Dr. Tunnicliff of Bozeman, Mont.

. . . Dr. Tunnicliff read his paper. . . . (Applause.) (To be published.)

CHAIRMAN MURPHY: Thank you, Dr. Tunnicliff.

CHAIRMAN MURPHY: We will proceed to "Susceptibility of Furbearing Animals to the Toxins of Clostridium Botulinum." I believe Dr. Quortrup is to present the case.

. . . Dr. Quortrup read his paper. . . . (Applause.) (To be published.)

CHAIRMAN MURPHY: I'll have to ask your indulgence for a few minutes. There is a whole sheaf of announcements.

. . . Chairman Murphy made several announcements. . . .

CHAIRMAN MURPHY: And now, although we are ahead of the game, we will proceed to the final paper of this afternoon, "Experimental Avitaminosis A in Sheep" by Drs. D. F. Eveleth, D. W. Bolin, and Alice I. Goldsby. Dr. Eveleth, I believe, will present the paper.

. . . Dr. Eveleth read the paper. . . . (Applause.) (To be published.)

CHAIRMAN MURPHY: Thank you, Dr. Eveleth.

That ends the official part of the program, but it has come to our attention that Dr. MacIntyre, pathologist of the Los Angeles County Livestock Department, has some material to present on a newly recognized disease of horses which is called virus papular dermatitis. He has requested that he be allowed to show a short

movie of perhaps four or five minutes and briefly summarize the findings. But for it, we stand adjourned.

. . . The meeting adjourned at 4:25 p.m. . . .

Section on Poultry

Wednesday Morning, Aug. 18, 1948

The first session of the Section on Poultry, held in connection with the Eighty-fifth Annual Meeting of the American Veterinary Medical Association, held at the Palace Hotel, San Francisco, Calif., Aug. 18, 1948, convened at 9:00 a.m., Dr. J. P. Delaplane, Kingston, R. I., chairman, presiding.

. . . The meeting opened with a motion picture, "Virus Pneumonia," by Dr. J. P. Delaplane, Kingston, R. I. . . .

CHAIRMAN DELAPLANE: We are now ready to start with the regular program.

First, I want to thank Dr. Hinshaw for the splendid manner in which he has organized the program this year. As most of you know, it is customary in this section for the chairman to rest more or less on the work he did the previous year as secretary, so, on behalf of myself and Dr. Hinshaw we express our appreciation to all of you for your coöperation in making this program possible.

Now, maybe Dr. Hinshaw has a few words.

SECRETARY W. R. HINSHAW (Davis, Calif.): I think the chairman has made the report for both the secretary and the chairman.

CHAIRMAN DELAPLANE: I'd like to remind you that we propose to keep this program strictly to schedule, and we feel if any of you whose papers are a little bit long, if we jog your memory, you will not feel offended. We do like to have time for discussion on these papers, and I believe we'll have adequate time if we adhere to schedule. If you finish ahead of schedule, we will do well to have a little discussion until it is time for the next paper. Keep that in mind, then.

The first one on the program is Dr. P. J. Brandly of Washington, D. C. The subject is "Procedure and Techinque of Poultry Inspection." I present Dr. Brandly.

. . . Dr. P. J. Brandly read his paper. . . . (Applause.) (To be published.)

CHAIRMAN DELAPLANE: It is gratifying to see the number of persons in this section. We are hoping later to have a little more room.

The next paper is entitled, "The Use of Estrogens for Fattening Poultry," by Dr. F. W. Lorenz of Davis, Calif.

. . . Dr. Lorenz presented his material. . . . (Applause.) (To be published.)

CHAIRMAN DELAPLANE: Now, the next subject on the program is the "Symposium on Newcastle Disease Prevention." It is a timely subject which we all as veterinarians are interested in. I believe we have a pretty well-rounded program for this symposium. If we may, with your pleasure, we would like to have the papers, and then after all of the papers are finished, if you will have your question in mind, we will have our question period at the end of the completed program rather than after each paper.

Now, the first on this program this morning is Dr. Beach from Berkeley, Calif., whose subject is "The Modification of Virus by Cultural Methods." Dr. Beach.

. . . Dr. Beach came forward. . . .

CHAIRMAN DELAPLANE: Dr. Beach, we are going to try to hold you to fifteen minutes if possible, and all the others.

. . . Dr. Beach read his paper. . . . (Applause.) (To be published.)

CHAIRMAN DELAPLANE: Thank you, Dr. Beach.

I am quite sure when we open this subject for questions there will be a number.

The next paper is one entitled, "Immunization with Live Virus," by Dr. F. R. Beaudette, Dr. J. A. Bivins, and Dr. Barbara Rhodes Miller of New Brunswick, N. J. Dr. Beaudette.

. . . Dr. Beaudette read the paper. . . . (Applause.) (To be published.)

CHAIRMAN DELAPLANE: Thank you very much.

CHAIRMAN DELAPLANE: The next paper in this series will be one on "Vaccination," by Dr. H. E. Moses, Lafayette, Ind. Dr. Moses.

. . . Dr. Moses read his paper. . . . (Applause.) (To be published.)

CHAIRMAN DELAPLANE: Thank you, Dr. Moses.

We have another paper, the title of which is "Vaccination Against Newcastle Disease with Formalin-Inactivated, Commercially Produced Vaccine," by Dr. O. L. Osteen.

. . . Dr. Osteen read his paper. . . . (Applause.) (To be published.)

CHAIRMAN DELAPLANE: Thank you, Dr. Osteen.

CHAIRMAN DELAPLANE: If we can all return at the specified time—1:30 this afternoon, we will have another interesting program.

We will now be adjourned for lunch.

. . . The meeting adjourned for lunch at 12.10 p.m. . . .

Section on Poultry

Wednesday Afternoon, Aug. 18, 1948

The second session convened at 1:30 p.m., Dr. Delaplane, chairman, presiding.

. . . The session opened with a motion picture, "Poultry Disease," by Dr. C. C. Ellis, Amherst, Mass. . . .

CHAIRMAN DELAPLANE: The next order on our schedule is the nomination of section officers.

We nominate a chairman and secretary. We elect them, and that does not mean that that is final. We are merely recommending these to the incoming president who makes the final selection.

It has been the custom in recent years for the individual who served as secretary to be promoted to the chairmanship, for the simple reason that all of the load of the program arrangement falls on the secretary. We are quite fortunate that we had Dr. Hinshaw this past year. Now, with that experience, he in turn can give considerable assistance to next year's secretary.

So, without any further ado, I would suggest that we entertain a motion for the nomination of our next year's chairman.

I believe you are familiar with the fact that our next year's meeting is to be held in Detroit in July, and it should also be kept in mind that it is advantageous to the incoming chairman to have the secretary live in that area. So, if you will keep that in mind, I believe we will proceed with the nomination for chairman.

DR. BULLIS (Mass.): I move that the procedure be continued and that Dr. Hinshaw be nominated for the chairman of the section, and that the present chairman, in lieu of the secretary, be instructed to cast one ballot for Dr. Hinshaw as chairman.

DR. JONES (Calif.): Second the motion.

. . . The motion was duly voted upon and carried. . . .

CHAIRMAN DELAPLANE: The "ayes" have

it. I will therefore cast one ballot for Dr. Hinshaw as chairman of this section for 1949.

Now we will entertain a motion for nominations for secretary.

DR. BRANDLY: I nominate Dr. Cunningham of Michigan.

DR. DICKENSON: I nominate Dr. Stafseth, who, by his own words this morning, has contributed a great deal to the pathologic information that we have.

CHAIRMAN DELAPLANE: Do we have seconds to these nominations? Do we have a second to any of these nominations?

DR. HENDRICKS: Second the nomination of Dr. Cunningham.

CHAIRMAN DELAPLANE: Any other second? Or any other nominations, I should ask? Does someone second your nomination, Dr. Dickenson?

DR. BANKOWSKI: Second the nomination of Dr. Stafseth.

DR. STAFSETH: Mr. Chairman, I wish to withdraw my name.

CHAIRMAN DELAPLANE: Dr. Stafseth wishes to withdraw. Do you wish to withdraw the nomination?

DR. DICKENSON: I do not wish to go counter to anyone's wishes. If he wishes to withdraw, I will not insist upon the nomination.

CHAIRMAN DELAPLANE: Any other nominations?

DR. BEACH: I move the nominations be closed.

DR. TUCKER (Ind.): Second the motion.

DR. BEACH: I move the secretary cast a unanimous ballot for Dr. Cunningham.

CHAIRMAN DELAPLANE: Are you ready for the question?

. . . The motion was duly voted upon and carried. . . .

CHAIRMAN DELAPLANE: The "ayes" have it. The secretary will cast a unanimous ballot for Dr. Cunningham for incoming secretary for next year.

Now, I believe it has been the custom for the incoming officers to give us a few remarks. Unfortunately Dr. Cunningham isn't here, but I believe Dr. Hinshaw is here, and perhaps he will give you some tips for next year's program.

DR. HINSHAW (Davis, Calif.): I am just taking up time. I will say the secretary can't get along without the chairman, however, in view of the fact that this year Dr. Delaplane said he didn't do anything. He did a lot. But certainly it is wise to have a secretary in the region where the meeting is to be held, and I assure you I will give Dr. Cunningham all the support I can with the experience I have had this year. That is all I need to say.

CHAIRMAN DELAPLANE: I believe there have been some requests. I think we are on business now. There have been some requests by individuals that, after the completed program this afternoon, they would like to have more discussion on Newcastle disease. Now, if you wish to do that at the end of the formal session and will remain here, perhaps we can work it out. How many of those who were on the morning program are here? Dr. Beach, Dr. Beaudette here? I don't know Dr. Brandly, whether we have enough participants. Do you have anything to say, Brandly?

DR. BRANDLY: No. Since the question was raised, I think those who want to stay can, and probably Dr. Beaudette, Dr. Moses, and the rest will be here. It seems it should be optional.

CHAIRMAN DELAPLANE: Let's leave it this way: All who desire to stay around, if we can get those participants, we'll continue the discussion on Newcastle disease at the end of this program.

I wonder how many failed to see the picture presented first this morning in connection with virus pneumonia and would desire to see that film? (Show of hands.) I think enough are interested. We will show it to them.

. . . Motion picture, "Virus Pneumonia" shown again. . . .

CHAIRMAN DELAPLANE: The first paper on this afternoon's program is entitled, "The Use of Poultry Diagnostic Laboratories," by Dr. E. E. Jones of Los Angeles, Calif. Dr. Jones.

. . . Dr. Jones read his paper. . . . (Applause.) (To be published.)

CHAIRMAN DELAPLANE: Thank you, Dr. Jones.

Does anyone have any questions they'd like to ask Dr. Jones?

(There was no response.)

We will proceed to the next part.

CHAIRMAN DELAPLANE: The next subject is entitled "Septicemic Diseases Including Cholera and Salmonellosis," by Dr. Carl A. Brandly, Madison, Wis.

. . . Dr. Brandly read his paper. . . . (Applause.) (To be published.)

CHAIRMAN DELAPLANE: We will now declare this session closed. I wish to remind you, however, that Dr. Brandly has consented to act as moderator for a symposium on Newcastle disease. I have already put in a full day. I'll ask him to do that. If those on the program will remain and there are enough interested, we will have more discussion of Newcastle disease. So, if Dr. Brandly will do that I'd appreciate it.

DR. BRANDLY: I didn't agree to do that. I think there are questions. The people who were on the program are here. I am sure they'd be willing to answer questions.

CHAIRMAN DELAPLANE: I'll appreciate it if you will be moderator, Dr. Brandly.

. . . The Section meeting adjourned at 4:30 p.m. . . .

Section on Sanitary Science and Food Hygiene

Tuesday Morning, Aug. 17, 1948

The first session of the Section on Sanitary Science and Food Hygiene, held in connection with the Eighty-fifth Annual Meeting of the American Veterinary Medical Association, held at the Palace Hotel, San Francisco, Calif., Aug. 17, 1948, convened at 9:00 a.m., Dr. M. D. Baum, Denver, Colo., chairman, presiding.

CHAIRMAN BAUM: As chairman, I shall exercise my prerogative and dispense with the opening remarks of the chairman, in order that we may bring the program up to time.

As most of you know, we are integrated with other sections and, therefore, bound to maintain a schedule, so if it is agreeable with you gentlemen, I will skip the report of the secretary and the remarks of the chairman and proceed with the program.

I would now like to introduce Dr. I. A. Merchant of Ames, Iowa, who will discuss "Public Health Significance of Bovine Udder Infection." Dr. Merchant.

. . . Dr. Merchant read his paper. . . . (Applause.) (To be published.)

CHAIRMAN BAUM: Thank you very much, Dr. Merchant.

Our next speaker is Dr. R. R. Parker, director of the Rocky Mountain Laboratory, Public Health Service, Hamilton, Mont. He will discuss "Q Fever—A Brief Survey of the Problem."

. . . Dr. Parker read his paper. . . . (Applause.) (To be published.)

CHAIRMAN BAUM: Thank you, Dr. Parker.

Our next discussion will be "Veterinary Public Health and the Health of the Nation." It is a panel discussion, and if Dr. Steele, the moderator, will step forward with his partners, we will proceed with that part of the program.

. . . The panel discussion was presented. . . . (Applause.) (To be published.)

. . . The meeting adjourned at 12:30 p.m. . . .

Section on Sanitary Science and Food Hygiene

Tuesday Afternoon, Aug. 17, 1948

CHAIRMAN BAUM: The meeting will be in order.

At this time, I will ask for the report of the secretary, which was not given this morning because of lack of time. Dr. Cooke will report on unfinished business of last year.

. . . Secretary Cooke read the resolution to amend Article XIV, Section 1, paragraph e, to read "Public Health." . . .

CHAIRMAN BAUM: You have heard the resolution.

DR. BRANDLY: I move that the resolution be adopted.

DR. HUNT (Ore.): I second the motion.

CHAIRMAN BAUM: Is there any discussion? If not, we are ready for the question. Those in favor of the motion, please signify by saying "Aye." Contrary? It is carried.

This changes the name of the Section on Sanitary Science and Food Hygiene to Public Health. So, next year in Detroit, there will be no Sanitary Science and Food Hygiene Section; it will be designated as the Public Health Section.

Have you any additional reports, Dr. Cooke?

SECRETARY COOKE: Nothing more than that. Thank you.

CHAIRMAN BAUM: In order to maintain our integration with the other sections of this meeting, we should proceed without delay. We will have now "A Review of Histoplasmosis as Affecting the Veterinarian," by Dr. Joseph Ruhe of the United States Public Health Service.

DR. JOSEPH RUHE: Gentlemen, I have been flattered or insulted on the program by having been accorded an M.D. degree and a Master of Public Health Degree. I am afraid I have been given the title of my brother who is an M.D. I am just a D.V.M.

. . . Dr. Ruhe read his paper. . . . (Applause.) (To be published.)

CHAIRMAN BAUM: The next subject is "Listerellosis in Cattle and Sheep." This paper is by Dr. Rue Jensen and Dr. D. R. Mackey, of Fort Collins, Colo. I understand that that paper will be divided into two sections. Dr. Jensen will speak first.

. . . Dr. Jensen showed his slides, with comments. . . . (Applause.)

DR. JENSEN: I will now turn this over to Dr. Mackey, who will discuss the symptoms and treatments.

. . . Dr. Mackey read his paper. . . . (Applause.) (To be published along with Dr. Jensen's paper.)

CHAIRMAN BAUM: Thank you, Dr. Mackey and Dr. Jensen.

We will now deviate a moment from our papers to conduct the nominations for officers for the coming year. We have to nominate a chairman and secretary. We will nominate officers, and it is up to the president to accept them and place them in office. I will now accept nominations for the chairman of the Public Health Section of the American Veterinary Medical Association for next year.

. . . The name of Dr. I. W. Rowles was placed in nomination for chairman, and a motion made and seconded that the nominations be closed. . . .

CHAIRMAN BAUM: Do I hear a nomination for secretary?

. . . The name of Dr. Arthur Wolff of Michigan was placed in nomination and the nomination seconded. . . .

CHAIRMAN BAUM: Are there additional nominations?

DR. STEELE: I would like to nominate Dr. Zeissig of New York.

. . . The nomination was seconded. . . .

CHAIRMAN BAUM: Are there additional nominations? Do I hear any motion that we close the nominations?

. . . Motion was made and seconded to close the nominations. . . .

CHAIRMAN BAUM: The nominations are: Dr. L. W. Rowles of Topeka, Kan., for chairman, and for secretary, Dr. Arthur Wolff, of Michigan, and Dr. Alexander Zeissig of New York.

Next we have a Progress Report from the Committee on Milk and Food Hygiene. We have heard much about this committee, but rarely have the opportunity of learning of their activities.

. . . Dr. Kingman read his paper. . . . (Applause.) (To be published.)

CHAIRMAN BAUM: Our next paper and certainly not the least important of the group is "Veterinary Food Inspection Service of the Armed Forces." This will be presented by Major M. V. Starnes.

. . . Dr. Starnes read his paper. . . . (Applause.) (To be published.)

CHAIRMAN BAUM: Are there any subjects that should be brought before this section before closing? We were rather successful in meeting our deadline on the closing. I sincerely hope that no one has felt crowded in their time.

I want to thank everyone for bearing with me, and to thank our very able secretary, Dr. Cooke.

If there is no additional business to come before the meeting, the Section meeting will be adjourned.

. . . The meeting adjourned at 4:00 p.m. . . .

COMMITTEE REPORTS

Adopted at the Eighty-fifth Annual Meeting

of the

American Veterinary Medical Association

San Francisco, August 16-19, 1948

Standing Committees

Council on Education

The Council on Education met three times during the past year: in Cincinnati during the annual meeting of the American Veterinary Medical Association; in Chicago in conjunction with the United States Livestock Sanitary Association meeting during December; and again in Chicago during the month of May when two full days were devoted to the various problems involving education. The inspection project of the schools which is performed by the executive committee of the Council has been vigorously pursued. In addition to the prompt reinspection of the schools on probation, the committee has also conducted the inspection of those institutions regularly listed for annual inspection. Faculty recruitment continues to be a most important problem of all colleges. Particularly is this true in the new schools which are involved in various stages of development. Interest in veterinary medical education continues to grow and, as a result, all of our schools are receiving far more applications than they can hope to admit. Unfortunately, some of the schools are continuing to enroll larger numbers than can be adequately instructed. This applies especially to the teaching of clinical subjects. The School of Veterinary Medicine formerly at Middlesex University has been discontinued permanently. New schools of veterinary medicine are now undergoing development in the following institutions: Tuskegee Institute, Tuskegee, Ala.; University of Georgia, Athens, Ga.; Oklahoma A. & M. College, Stillwater, Okla.; University of Missouri, Columbia, Mo.; University of Minnesota, St. Paul, Minnesota. Two other state universities, namely, Illinois and California, will accept freshmen classes with the opening of the 1948-49 college year. The Council on Education as well as the office of the executive secretary, Dr. J. G. Hardenbergh, receive numerous in-

Student Enrollment for the Academic Year 1947-1948

School	Fresh.	Soph.	Jun.	Sen.	Spec.	Grad.	Total	1946	Change
Alabama Polytechnic Institute.	68	68	100	30	1	2	266	158	+108
Colorado State College.....	60	61	44	34	..	..	199	161	+ 38
Iowa State College.....	71	74	66	0	2	9	211	155	+ 56
Kansas State College	70	71	61	0	..	..	202	198	+ 4
Michigan State College	96	71	61	0	..	82	228	206	+ 22
New York State Veterinary College	49	49	39	1	..	..	143	127	+ 16
Ohio State University, The	73	76	66	20	..	..	235	188	+ 47
Ontario Veterinary College....154		140	118	43	..	..	455	351	+104
Pennsylvania, University of ...	52	50	28	39	..	..	169	164	+ 5
New Quebec Veterinary School.	13	15	16	11	..	..	55	49	+ 6
Texas A. & M. College.....	63	78	72	53	0	2	266	255	+ 11
Washington, State College of..	50	41	50	0	0	0	141	113	+ 28
Totals 819		794	721	231	3	95	2,570	2,125	+445
Georgia, University of	57	47	0	0	0	0	104	....	...
Minnesota, University of	24	0	0	0	0	0	24	....	...
Missouri, University of	30	27	0	0	0	0	57	....	...
Tuskegee Normal & Industrial Institute	22	20	4	0	0	0	46	....	...
Oklahoma A. & M. College.....	28	...	...	...	..	..	....	....	...
Totals 161		94	4	0	0	0	231	....	...
Totals (approved and new schools) 980		888	725	231	3	95	2,801	....	...

quiries from students and prospective students of the newly organized schools regarding their accreditation or recognition by the American Veterinary Medical Association.

In order that this and similar questions might be answered effectively, the Council prepared a statement relative to accreditation or recognition. This statement was published in the January, 1948, number of the Journal of the American Veterinary Medical Association. The student enrollment for the academic year, 1947-48, is as follows:

The Council recommends that the following colleges be accredited by this association for the coming year, subject to reinspection and review, and their graduates be eligible for membership in this association:

1) Alabama Polytechnic Institute, Division of Veterinary Medicine, Auburn. 2) Colorado A. & M. College, Division of Veterinary Medicine, Fort Collins. 3) École de Médecine Vétérinaire de la Province de Québec, Université de Montréal, Québec. 4) Iowa State College, Division of Veterinary Medicine, Ames. 5) Kansas State College, School of Veterinary Medicine, Manhattan. 6) Michigan State College, School of Veterinary Medicine, East Lansing. 7) New York State Veterinary College, Cornell University, Ithaca. 8) The Ohio State University, College of Veterinary Medicine, Columbus. 9) Ontario Veterinary College, University of Toronto, Guelph. 10) University of Pennsylvania, School of Veterinary Medicine, Philadelphia. 11) Texas A. & M. College, School of Veterinary Medicine, College Station. 12) State College of Washington, College of Veterinary Medicine, Pullman.

s/W. L. BOYD, Chairman
JAMES FARQUHARSON, Secretary

W. A. AITKEN	W. A. HAGAN
SETH C. DILDINE	S. W. HAIGLER
GARTH A. EDGE	C. C. HASTINGS
M. S. SHAHAN	

Legislation

Last year, the report of this committee referred to two major items of national legislation: first, laws authorizing coöperation of the U. S. Department of Agriculture and the Bureau of Animal Industry with Mexico in combating foot-and-mouth disease, and the required appropriations to carry on the work in Mexico; second, legislation affecting the Army Veterinary Corps.

At the time of preparing this year's report (April, 1948), there have been several developments in the foot-and-mouth disease situation with which you are all familiar. Most significant is the law authorizing an extensive and intensive research program by the United States under conditions specified by Congress in bills enacted in April of this year. By the time this report is presented, the details of this newly authorized research program will be known to all of you.

Regarding the Officer Personnel Act of 1947 and its effects upon the status of Veterinary Corps officers, it is pleasing to report that, in actual practice, the features which the AVMA opposed in Congress have proved less objectionable than was anticipated; the entering rank of second lieutenant provided by the Act will probably not affect many applicants for commissions for some time at least (see editorial, J.A.V.M.A., (May, 1948): 425-426). In the meantime, as recommended by this committee in 1947, action has been taken by the Association of American Veterinary Deans and by several of the accredited veterinary colleges to adopt a minimum requirement of two years of preveterinary training for admission, which it is understood will become effective in practically all veterinary colleges in the United States by the academic year 1949-50. This action should do much to correct the basic handicap which caused the sponsors of the Officer Personnel Act of 1947 to calculate the appropriate entering rank of Veterinary Corps officers as second lieutenants. The committee commends the prompt and favorable consideration given to this important aspect of veterinary education by the deans' association and the Council on Education.

This year, the committee has again been concerned with two principal items of national legislation. First, laws which would return the costs of federal meat inspection to the United States from the "packer-paid" arrangement set up by Congress in 1947 as an "economy" measure and which the Association strongly opposed as a matter of principle. As this report is written, Congress has before it identical bills, S.2256 and H.R. 5675, introduced by Senator Kem of Missouri and Congressman Gillie of Indiana, respectively. These bills provide "That the cost of inspection rendered on and after July 1, 1948, under the requirements of laws relating to federal inspection of meat and meat food products shall be borne by the United States." At the direction of the Board of Governors, a statement reaffirming the stand taken last year was prepared and presented to the Senate and House committees on agriculture by the undersigned. [The Kem-Gillie Bill was passed by Congress on May 20, 1948 and sent to the President for his signature; also, legislation to provide the necessary appropriation for meat inspection had been introduced.]

Second, the proposed "Selective Service Act of 1948," much discussed during March and April, had not been formulated by the respective military affairs committees of Congress at the time of preparing this report. Reports indicated that it would be patterned after the Selective Service Act of 1940, with certain modifications, primarily as to ages of registrants and the age group subject to call. A tentative provision of the 1948 act was authorization of the President, on requisition from the armed forces, to call up physicians, dentists, and veterinarians up to the age of 45, whose services might be needed to meet the quotas required for medical services for an expanded military establishment. This proposal was being strongly opposed by the professions affected because of its discriminatory aspects and other objectionable features. The Association through its officers and appropriate committees will keep in close touch with developments that may concern veterinary personnel and services in case of another national emergency to the end that appropriate recognition will be given to essential civilian needs for veterinary personnel and services as balanced against military requirements.

s/J. G. HARDENBERGH, Chairman

C. C. FRANKS	H. C. GIVENS
GEORGE W. GILLIE	N. J. MILLER

Therapeutic Agents and Appliances

It is necessary to have definite objectives when determining the therapeutic value of medicinal agents. The Committee on Therapeutic Agents and Appliances has formulated some rules which it believes will provide a basis for these objectives.

Rules Governing the Acceptance of Products by the Committee

It is understood that the acceptance by the committee of a preparation or product does not mean that it endorses or recommends that agent but that it has definite therapeutic action for the condition for which it is recommended.

1) **Composition.**—The quantitative composition of preparations or products submitted for consideration must be made known and may, at the discretion of the committee, be published.

Drugs in interstate commerce must bear on their labeling a statement of composition under the Federal Food, Drug, and Cosmetic Act. Labeling of mixtures that do not come under this Act such as those sold in intrastate commerce must contain, if presented to the committee, a statement of the amount of each ingredient in a given quantity of the mixture and the amount in each dose if a certain dosage is recommended. In the case of a definite chemical substance or mixture, a descriptive name must appear on the labeling and in advertising. The committee reserves the right to propose a different name if it so desires. Preservatives and vehicles and the amounts of each must be listed. Constituents which are not concerned in the pharmacologic action of the preparation need not be submitted in detail, but their nature, quantity, and toxicity must be disclosed.

2) **Identification.**—Procedures for determining the composition or standardization of a submitted preparation or product must be furnished unless official methods are applicable and these are so stated. The manufacturers of a drug should supply this information which is necessary to control the quality of a product. For chemical compounds, this should include tests for identity, amount, and purity. For products which are physiologically standardized or assayed, the method and criteria must be furnished in sufficient detail to permit of their use by independent investigators. The committee does not accept a product, or continue acceptance of a product, if the same product or an essentially similar one is marketed as a therapeutic agent in the United States by the the same firm under another name which has not been recognized.

3) **Therapeutic Claims.**—Manufacturers or their agents are held responsible for all statements made or quoted in any of their advertising concerning the therapeutic properties of their products. These must be compatible with demonstrable facts.

Claims for nontoxicity are admitted when they do not conflict with known facts.

To be acceptable, the clinical evidence must offer objective data with such citation of authority as will enable the committee to confirm the facts and establish the scientific value of the conclusions. The acceptability of data is determined mainly by its quality.

In commenting on advertising material, the committee endeavors to indicate the type of claims which are acceptable and the nature of objectionable statements. The addition of new claims in the advertising material of accepted products or formula changes must be submitted for consideration.

Reference to veterinary literature in advertising for an accepted product should be accompanied by the names of the investigators.

4) **Protected Names.**—Trademark names for medicinal products are accepted if the committee concludes that the common or generic names are not unduly subordinated by such trademarks in the labeling and advertising of the products.

The committee believes that medical science is promoted by the use of a single (generic) name for each drug, based on scientific principles and freely available to all. This would avoid needless confusion.

It is also recognized that the discoverer of a new remedy has a legal right to a restricted name, and that the manufacturer who undertakes the expense of its practical development has a right to some protection and may not feel justified in undertaking the task if this right is denied. It is considered advisable to accept more than one protected name for the same product unless there are reasons which would render this especially objectionable. The drug should be identified by adding the generic or official name such as "Nembutal, brand of pentobarbital sodium."

Trademark names will not be accepted if applied to U.S.P. or N.F. drugs unless in use before being included in these official lists.

The committee believes that prescriptions should be written on the basis of the therapeutic effects of the individual ingredients.

Protected names may be accepted for pharmaceutic mixtures on the basis of originality and if they prove to be a distinct improvement over available preparations. It is recognized that many preparations can be prepared in a readily usable form more advantageously by the manufacturers that in the individual pharmacy.

5) **Patents and Trademarks.**—Patent numbers must be furnished the committee if a product is patented as to process or product or both. If the name of a product is registered or the label copyrighted, the registration name and number and copies of the label must be furnished.

6) **Useless Products.**—A preparation will not be accepted if the committee decides it is not in the best interests of rational therapeutics.

General Information.—Any product or preparation which it is desired to have considered by the committee for its approval should be sent to the Executive Secretary, American Veterinary Medical Association, 600 South Michigan Avenue, Chicago 5, Illinois. The presentation should be accompanied by:

1) A sample of each active ingredient; also any other ingredient not described in the U.S.P. or N.F., which is used in preparing the products.

Two retail packages of the product as it is supplied to the trade.

2) Six copies of each advertising circular or pamphlet which is used to promote the sale of the product. The committee plans to publish a list of approved products in the **J. A. V. M. A.** It is requested that a complete description of the product be given and that the statements be made exact, clear, and concise and include the following:

Name.—The trade name of the product.

Synonyms.—If any.

Definition.—If the product is a definite substance, its scientific name and its structural chemical formula, so far as has been determined. If the product is a mixture, a statement of the amount of its active medicinal ingredients in a given quantity, the vehicle, and preservatives if present.

Properties.—Appearance, odor, taste, and solubility. Important incompatibilities.

Pharmacologic Action.—A brief statement of medicinal properties which the product is claimed to possess and its mode of action if known.

Manufacturer.—The name of the firm responsible for the finished product and a statement specifying the identity of the manufacturer of the active ingredients contained in the product. A new firm making its first presentation to the committee should make a statement of the laboratory facilities and control personnel of the firm, and a general statement concerning the firms' policies. The manufacturer may include in its advertising a statement that the product is approved by the com-

mittee. Some form of official recognition will be adopted to apply to accepted products.

To initiate the work as set forth in the suggested rules, it is estimated that the annual cost of the committee's activities will be:

Printing and secretarial expenses....$200.00
Committee expenses (meetings, etc.). 200.00

The Committee on Therapeutic Agents and Appliances believes that the preparation and distribution of inferior therapeutic agents can be reduced through its activity.

s/ROGER P. LINK, Chairman
L. A. GENDREAU J. V. LACROIX
R. C. KLUSSENDORF H. E. MOSKEY
JOHN L. WELLS

Public Relations

Like many professions, the veterinary calling for many years was noted for its poor public relations. Here, in a profession whose welfare depends on proper public understanding and patronage, virtually nothing was done for years to foster adequate public relations activities. Truly, in so far as the public was concerned, veterinary medicine was "The Forgotten Profession." In motion pictures, books, and magazines, veterinarians were often portrayed as a "lesser order" of citizens in the average community, but few steps were taken to remedy the basic misconception which caused such portrayals.

Thanks to the vision and understanding of the Board of Governors and executives of the American Veterinary Medical Association, this condition of affairs was properly appraised six years ago, and steps were taken to start correcting it. A modest program of public relations activities was outlined at that time, and an experienced public relations counsel was retained. Since then, the Association has carried on a continuous public relations activity through newspapers, farm papers, radio, and other mediums. This activity has had the following main objectives:

1) To make the public more conscious of the veterinarian, and his importance to the community.
2) To elevate the public's regard for the veterinary profession as a whole.
3) To bring to the public timely word on scientific research and worthwhile achievements of the profession.
4) To tell something of the part which veterinary medicine is playing in the welfare and advancement of the nation.

That these objectives are being achieved, at least in part, is evidenced by the change in public attitude which has taken place in the past few years. Many veterinarians find that there is a growing public appreciation of veterinary medicine in the average community. This partial change in attitude, however, represents but a beginning. One cannot alter the thinking of the general public overnight. It takes years to accomplish such a task. It takes continuous, steady education, constant repetition month after month, year after year. The important point is the fact that the profession has made a start and that, with growing momentum, the profession's public relations program may be expected to bear increasing fruit if it is carried on with vigor and understanding during the years immediately ahead.

In evaluating the progress that has been made, the Association should give very great credit, also, to an outstanding public relations program on behalf of the profession which has now been in progress for upward of fifteen years. This is the program of the Associated Serum Producers, conducted through its educational bureau, the American Foundation for Animal Health. It would be difficult for the profession to fully express its appreciation of this great effort, and what it has accomplished and is accomplishing on behalf of the individual practitioner and veterinary medicine as a whole. This year-round campaign is being conducted from coast to coast through news releases, radio releases, illustrated articles, cartoons, educational advertisements, farm journal releases, and a motion picture.

The dramatized motion picture "Valiant Years," produced by Associated Serum Producers this year and now being released throughout the country, is one of the finest pieces of public relations activity ever undertaken for the profession. To the companies which have made this program possible, this committee wishes to express its most sincere appreciation.

NEWS RELEASES

As regards the present public relations program of the American Veterinary Medical Association, several features are particularly notable and are obtaining especially good results. One of these is the year-round development of timely news releases which are issued through the leading national news bureaus such as the Associated Press, United Press, and International News Service. The use of these releases is continuously checked by means of a clipping bureau, and in the past year almost every release issued by the Association has been used by these news bureaus in one form or another, on a nation-wide basis. This represents very marked progress compared with the situation which existed when the public relations program was first started a few years ago. At that time, only an occasional release was used by these news bureaus. Now, they have come to look upon the American Veterinary Medical Association as a logical source of news and generally have come to regard our material as valuable and interesting to their readers. The value to the profession of having such public relations articles going out all over the nation, week in and week out, and appearing in leading newspapers from coast-to-coast, cannot be overestimated. Your committee regards this as the most important single activity the AVMA is now conducting in the public relations field.

RADIO

Another part of the American Veterinary Medical Association public relations project which is proving of outstanding value to the profession is the year-round program of radio broadcasts being carried on in coöperation with the various state and regional veterinary associations. These broadcasts were first started in a small way four years ago. They have now grown in popularity to the point where approximately 30 state, regional, and provincial associations are participating in this joint project throughout the United States and Canada. The radio scripts are prepared by the AVMA public relations department, and are furnished to the state associations ready for use. The state associations in turn provide speakers each week from among their membership and arrange for broadcasting time on their local stations. By this means, literally millions of listeners each week are being given sound information on animal disease problems, and on the part that the veterinary practitioner is playing in helping to cope with those problems.

SPECIAL SERVICES

The public relations service of the American Veterinary Medical Association is also active

in several other fields, including the issuing of a monthly clip sheet, "AVMA Press Service," for weekly newspapers, issuance of special articles to farm journals, development of special radio programs from time to time on the national networks, providing a news service for radio farm editors, and providing intensive coverage of the annual American Veterinary Medical Association meeting through newspapers, radio, and farm magazines.

OTHER ACTIVITIES

Your committee has also given special study to several other activities which can contribute further to better public relations for the profession. Among these are:

Preparation of a "Public Relations Guide" for senior students of veterinary medicine who are shortly to enter practice. The committee is already at work on basic material for such a guide. This material will be checked with various veterinary colleges for their suggestions, and with other leaders in the field for practical help on the details to be covered, and will probably be available for distribution to seniors in the 1948-49 school year. Development of this guide has been recommended because of the fact that the veterinarian in practice in a community is actually the public relations representative of the entire profession and can do much to either enhance or reduce the public esteem in which the profession is held. The committee will recommend that certain sections of this public relations guide be published in the JOURNAL of the AVMA. Many individual practitioners can profit by "refresher courses" on steps they can take locally to help advance the interests of their profession in their respective communities, and publication of parts of the guide in the JOURNAL should help toward this end.

NATIONAL GROUP CONTACTS

Early in 1948, the committee held a meeting at the American Veterinary Medical Association's office with President W. A. Hagan, executives of the Association, and the public relations counsel, and mapped out a plan to develop better public relations between the veterinary profession and other professional and commercial groups. It was decided to first make contacts with leading associations in other fields on a national scale, and then to attempt to carry these contacts down to the individual states.

The first work in this field has already been started. President Hagan addressed the national conference of county agents and, subsequently, President Hagan and the chairman of the Public Relations Committee held a conference with the executives and Livestock Committee of the National Association of County Agents to discuss common problems and to bring about better understanding and coöperation between the county agents and the veterinary profession.

In May, President Hagan addressed the National Feed Manufacturers Association as the first step toward bringing about better relations between the feed industry and the veterinary profession. Dr. A. H. Quin addressed the Midwest Agricultural Forum, sponsored by midwest feed dealers, in Kansas City last February. Future plans call for similar contacts with livestock breeding associations, farm organizations, and kindred groups. Each member of your Public Relations Committee has been allocated contact responsibilities with national associations whose interests are served by the veterinary profession. Once the national contacts have been developed, the state veterinary associations will be urged to follow through with similar contacts with the state groups in these respective fields. The committee feels that occasional misunderstandings, or antagonisms, on the part of some of these groups toward the veterinary profession are due more to lack of information than to any other one cause. Actually, there should be no conflict between the county agents, veterinarians, the feed industry, or other groups which serve the livestock industry. All have the same end in view—the development of a better agriculture—and all should and can coöperate toward this end. The committee feels that this interassociation activitiy can bear great fruit if pursued during the coming years.

The committee has also given consideration to a plan to assist small animal practitioners, in coöperation with the American Animal Hospital Association and affiliated interests. No definite steps have been taken on this project as yet but, if plans materialize, a series of radio scripts will probably be developed in the coming year, so that they can be used in major cities throughout the country in coöperation with small animal practitioners of those areas. These scripts would deal with small animal health problems and would offer practical advice and suggestions on the proper care of pets.

The AVMA office coöperated with the Publicity Committee of the American Animal Hospital Association, prior to that body's Atlanta meeting, by supplying copy for news releases and other material.

COUNSEL APPRECIATED

The committee also wishes to express particular appreciation to Mr. L. R. Fairall, our public relations counsel, under whose guidance the AVMA public relations program is achieving such splendid results. It was through his sound counsel that the original public relations plans of the association were drafted several years ago; and his continuing interest and activity are in large measure responsible for the steady gains we are making today. The cause of veterinary medicine is fortunate in having in its service a person who so uniquely combines the high ideals of the profession with the practical experience and knowledge of the trained public relations man.

CONCLUSION

In conclusion, the committee would recommend that the Board of Governors give consideration to more adequate financing of the present public relations program. We know of no national association of size and scope comparable to the American Veterinary Medical Association which carries on its public relations activities with such a modest budget.

The committee would like to point out that a substantial and continuing public relations program is especially desirable for the veterinary profession because of the fact that professional ethics prohibit the individual veterinarian from carrying on advertising or publicity in his own behalf. For this reason, the only way in which educational material to bring about greater appreciation of the profession can be disseminated is through national and state associations. The future growth of the profession and the welfare of the individual practitioners depend, in large measure, on public acceptance and on public appreciation of the value of the profession as a whole and of the individual practitioner's service in particular. For this reason, there is no single activity of the AVMA which can have greater value than a broad-scale public relations program.

As stated above, the committee feels that the present funds allocated for this program are too modest, in view of the great task which remains to be accomplished, and if at all possible this budget should be expanded in the coming year to permit a more adequate job to be done.

The committee deplores the present activities of certain groups and commercial interests who are seeking to exploit the farmer for private gain. We are all too familiar with the ads in some farm publications implying that the livestock owner can treat his own cows for mastitis, can vaccinate his own hogs, dose his own horses, etc. We have all read the messages of certain institutions offering sulfa drugs, penicillin, and other products for lay use without regard to the need for diagnosis, proper dosage, and adequate care in handling. Such activities are costing livestock raisers of this nation millions of dollars annually and are responsible for needless losses. It is the duty of the veterinary profession to combat such illogical activities with every means at its command.

s/A. H. QUIN, Chairman
C. E. DeCAMP C. F. SCHLOTTHAUER
C. D. LOWE C. WAY

Poultry

Since the Committee on Transmissible Diseases of Poultry of the United States Livestock Sanitary Association gave a comprehensive report on the poultry disease situation at the 1947 meeting in Chicago, and since this report will appear in the Association's annual proceedings, it was not deemed necessary to duplicate this effort.

Newcastle disease (avian pneumoencephalitis) continues to command much interest since it has been reported in 45 of the 48 states. It is hoped that research will continue to be concentrated on this disease and that a more satisfactory immunizing agent will soon be available to help in its control. The committee recommends that parallel studies of other respiratory diseases, such as infectious bronchitis and the chronic respiratory diseases described in Rhode Island, be intensified so that the differentiation of the various infections may be made easier of accomplishment. Progress has been made this past year in finding that infectious bronchitis virus from field origin may be adapted quickly to chicken embryos by allantoic or amnionic chamber inoculation, so that the characteristic dwarfing manifests itself during the first passage rather than requiring several passages.

Through the use of antibiotic agents in treating exudates of field origin to overcome bacterial contaminants, the isolation of both Newcastle and infectious bronchitis viruses has become a routine laboratory procedure, but further research is needed to define the limitations and overall efficiency of these methods.

Recently, the chronic respiratory virus described by Delaplane[1] again has been isolated. One flock of chickens in Massachusetts and two flocks in Rhode Island have yielded the virus. This virus is unique in that it produces arthritis in chicken embryos. It has been found that turkeys are quite susceptible to the infection which manifests itself in this species as a sinusitis, lower respiratory tract involvement, and a central nervous disturbance. The nervous manifestations displayed by turkeys are indistinguishable from those induced by Newcastle disease. It is quite possible that this disease is more prevalent in other sections of the country than is realized and therefore merits considerable attention.

The chemotherapy of coccidiosis continues to receive much attention. A number of sulfa compounds have now been shown to have considerable merit, i.e., sulfaguanidine, sulfamerazine, sulfamethazine, and sulfaquinoxaline.

The effort toward conservation of grain has greatly reduced the numbers of chickens and turkeys on farms, so that optimum efficiency in poultry production will be necessary to avoid shortages of eggs and poultry meat in the fall and winter of 1948-1949. Veterinarians, extension workers, and others concerned with the poultry industry should strive to impress poultrymen with the vital necessity of disease control in order that these shortages will be averted or minimized.

This year, President Hagan has asked the committee to compile information on the seasonal prevalence of the various poultry diseases in the United States. It is desired to have these data so that the central office of the AVMA may know which diseases need to be stressed by radio and other publicity. This is quite a time-consuming task and only a limited start has been made this year as shown by tables 1 and 2. It is believed that such a compilation from the various states also will be well-worthwhile in so far as it may yield valuable statistics on morbidity and mortality, and it has been suggested that the central AVMA office might serve as the clearing agency for such a project.

From the reports at hand for this year, it would seem desirable to have some satisfactory standard form of compiling the autopsy data to make the task of correlating such information more accurate and easier of accomplishment.

The committee wishes to thank Drs. Dickinson, Hamilton, and Wickware for submitting reports from their respective laboratories and to the California Department of Agriculture for the reports of Graybill and Jones,[2] and Hoffman and Stover[3] which were used in compiling the information.

TABLE 1—Seasonal Occurrence of Ten Poultry Diseases of Chickens from Reports Supplied by Five Laboratories in North America

	California	Washington	Canada	Oregon	Rhode Island
Pullorum	Jan.—Aug.	Jan.—Oct.	Apr.—June	March—June	Feb.—June
Coccidiosis					
Cecal	Feb.—Aug.	Apr.—Sept.	.....	March—Aug.	.....
Intestinal	Apr.—Nov.	May—Dec.	Apr.—Sept.	May—Oct.	Feb.—Nov.
Respiratory diseases	Apr.—Nov.	.....	.....	.....	All year
Fowl paralysis (neurolymphomatosis)	Apr.—Nov.	Apr.—Dec.	June—Sept.	May—Oct.	Apr.—Nov.
Leucosis and tumors	Nov.—	Apr.—Dec.	Nov.—Feb.	All year	All year
Fowl cholera	Apr.—May	.....	.....	.....	.....
Fowl pox	.....	Oct.—Nov.	.....	.....	.....
Fowl typhoid	Jan.—July	.....	.....	.....	.....
Reproductive disorders	Jan.—Apr.	.....	Peritonitis[1] All year	Few specimens All year	Oct.—March
Enterohepatitis	.....	Apr.—Aug.	Apr.—Oct.	.....	Apr.—July

...Insufficient specimens to be of significance.
[1]It is assumed that most of the peritonitis occurred as a result of reproductive disorders.

TABLE 2—Seasonal Distribution or Incidence of Various Diseases of Turkeys

	Oregon	Washington	Rhode Island	Texas*
Pullorum	.....	.....	.....	Apr.—July
Enterohepatitis	May—Oct.	May—Nov.	May—Nov.	May—Nov.
Paratyphoid	Apr.—July	Apr.—Aug.	.....	.....
Coccidiosis	Apr.—Sept.	.....	May—Aug.	May—July
Hexamitiasis	June—Oct.	.....	Never reported	June—Sept.
Erysipelas	Oct.—Dec.	Sept.—Feb.	1 case 1947	.....
Mycosis (crop)	May—Aug.	.....	.....	.....
Staphylococcic inf.	July—Jan.	.....	.....	Oct.—Jan.
Sinusitis	.....	.....	.....	Aug.—
Avitaminosis D	Apr.—July	.....	July—Sept.	Apr.—Aug.
Leucocytozoön	.....	.....	.....	May—Nov.
Botulism	.....	.....	.....	July—Sept.
Fowl typhoid	.....	.....	.....	Apr.—Nov.

*1942-1946 information.
... Incidence so low that data is not significant.

References

[1]Delaplane, J. P., and Stuart, H. O.: The Propagation of a Virus in Embryonated Chicken Eggs Causing a Chronic Respiratory Disease in Chickens, Am. J. Vet. Res., *4*, (1943): 325-332.

[2]Graybill, H. W., and Jones, E. E.: Seasonal Incidence of Poultry Diseases. California State Dept. Agric. Bull., *23*, (1934): 153-156.

[3]Hoffman, H. A., and Stover, Donald E.: An Analysis of Thirty Thousand Autopsies of Chickens. California State Dept. Agric. Bull., *31*, (1942): 1-30.

s/J. P. DELAPLANE, Chairman
C. A. BRANDLY — P. V. NEUZIL
W. R. HINSHAW — A. B. WICKWARE

Parasitology

The report of the committee on Parasitology was published in the September, 1948, JOURNAL, pp. 235-239. The committee submits the following addenda:

(*Table 1*) "Smear 82" should read "Formula 62", which is

Diphenylamine (technical grade)	3½ parts
Benzol (commercial)	3½ parts
Turkey red oil (pH-10 or neutral)	1 part
Lamp black	2 parts

All parts by weight

"Stock 1029" should read "A mixture of 10% of pyridine in an adhesive (A-58) which contains rosin, 45%; "Hercolyn" (hydrogenated methyl abietate), 40%; dibutyl phthalate, 15%. An alternative formulation for spinose ear ticks as devised by the Zoölogical Division, BAI, USDA, is benzene hexachloride (tech. grade, 12% γ isomer content), 5 parts; xylol (commercial grade), 10 parts; pure steam distilled pine oil, 85 parts."

"Formula M.S." should read "Formula M.S. 793-F," composed of diphenyl, 10 parts; benzene, 84 parts; "Triton 770", 1 part; N-butyl alcohol, 5 parts." All parts by weight.

(*Table 2*) "Di-Phenthane" should read "Di-Phenthane 70," which is 2, 2'-dihydroxy-5, 5'-dichlorodiphenyl-methane.

The use of hexylresorcinol is approved for hookworms in dogs as well as for ascarids.

Kamala is *not* approved for its anthelmintic effect in removing tapeworms from poultry.

Nutrition

The science of nutrition is one of the most rapidly expanding fields of immediate concern to the veterinarian. Although it is becoming increasingly difficult to keep abreast of all new developments, it behooves the practitioner to keep informed on the newer aspects of this subject so that he may consistently render the high type of service his clientele has a right to expect.

The gross deficiencies are ordinarily diagnosed and corrected, but the borderline or marginal cases may be overlooked. The latter class, from an overall animal health standpoint, is most important and by far the most prevalent.

Our scientific literature contains numerous descriptions of glaring examples of starvation, but too few reports of the subclinical or semi-subclinical manifestations of nutritional deficiencies frequently observed on the farms. The reason for this is obvious. Too few men with medical training are actively engaged in nutritional research. Consequently, reports of nutritional experiments are written more from a biochemical than a medical standpoint. This fact has greatly retarded the practical application of the newer findings in the science of nutrition.

Too many times the research worker who is well trained in biochemistry is interested only in normal physiologic processes and does not have the pathologic viewpoint. It is true that we first of all must know what and how much the animal needs in the way of the different food elements; but we must also know just what will happen, and when it will happen, in case the animal needs are not fully met. This is the picture we must recognize in order to distinguish it from other similar pictures resting upon a different foundation.

Many times the practitioner will make a general diagnosis of malnutrition without thoroughly analyzing the situation to locate the fundamental cause in that particular case. By correlating the basic principles of nutrition with his knowledge of disease, the veterinarian can arrive at a correct diagnosis in most cases. This question is closely tied up with the teaching of nutrition in our veterinary schools. Nutrition should be taught not only from a physiologic but also from a pathologic standpoint. Some progress has been made in this direction.

FEED SITUATION

Considering the country as a whole, the amount of feed available is adequate for the livestock population. In some sections, protein supplements are both scarce and high in price, which has led to a protein deficiency in many herds. There is a strong tendency by some breeders toward the use of vegetable protein for swine and poultry without proper supplementation. Vegetable protein supplements alone have not proved entirely satisfactory for reproduction and lactation. The more general use of alfalfa meal and some tankage or meat scraps for sows during gestation is reflected in a better pig crop in the cornbelt this spring.

VITAMIN A DEFICIENCY

In cattle, vitamin A deficiency is often observed in purebred herds that are kept in the

barns or corrals without access to green grazing and with grass hay or straw as the only source of roughage. It is also found in the feedlot when the calves are weaned from a dry pasture in the late fall, placed on a ration carrying little carotene and fed for a long time. Dairy and breeding animals receiving a low carotene forage may show evidence of vitamin A starvation during the winter and early spring. The practice of letting hay get dry enough to bale direct from the windrow, thus destroying a large part of its carotene content, has caused vitamin A deficiency in many herds in the corn belt area.

MINERAL DEFICIENCY

Phosphorus deficiency is widespread over most of the cattle-raising section of this continent. It is also observed in swine herds receiving an all vegetable diet. Its prevention and treatment are well known and should receive wider application.

Calcium deficiency still occurs in dairy herds and feedlot cattle more extensively than it should. Both calcium and phosphorus deficiences are easy to prevent and should not be overlooked.

Cobalt deficiency has been diagnosed in parts of Canada, the northern, northeastern, and southeastern parts of the United States. Its existence in other sections of the country has not been proved, although it may be present in a mild form and is not being diagnosed. Practitioners should be on the alert for marginal cobalt deficiency.

IODINE

The goiter map of North America shows a pronounced shortage of iodine in parts of Canada, the northwest section of the U. S., and the Great Lakes region. This condition gradually improves farther south, until little trouble is experienced near the Gulf of Mexico.

A rather large part of the farming section lies in the semi-iodine deficient area. In this area, there is a heavy loss of young animals from insufficient iodine intake. Many livestock owners are not aware of this loss and consequently make no effort to prevent it. Both the cause and the prevention of this trouble are well known. The practitioner is in a position to disseminate this information to his clientele.

RECOMMENDATIONS

1) That veterinary colleges give a more complete course in nutrition, which includes a special course in nutritional disorders, nutritional pathology, and the diagnosis of nutritional diseases.

2) That a veterinarian be a member of the staff on all experimental projects dealing with the nutrition of animals.

3) That each constituent association appoint a special committee on nutrition whose duty it is to prepare an annual report, covering the latest developments in this field, for presentation at the annual meeting, which can be later published for distribution to members.

4) That the annual program of each constituent association include a discussion of nutrition by some speaker who is recognized as an authority in that field.

5) That each practitioner subscribe to at least one periodical that deals with the subject of nutrition and production of animals.

s/C. C. HASTINGS, Chairman
A. H. GROTH HUBERT SCHMIDT
H. M. LA GARD JESSE SAMPSON

Registry of Veterinary Pathology

The Registry of Veterinary Pathology, which was established in 1944 at the Army Institute of Pathology, has continued to grow in scope and usefulness during the past year. The exceedingly active participation of an increasing number of veterinarians in this enterprise is most encouraging and augurs well for its continued success. The objectives of the Registry are to stimulate interest and promote scientific development in the field of veterinary pathology by assembling for study and research: (1) material representing general pathologic anatomy, including vitamin deficiencies, specific diseases of different tissues and organs, and examples of naturally and experimentally induced neoplasia; (2) a complete collection of prepared slides representing the normal histology of different species of animals, including domesticated and wild animals, birds, and cold-blooded vetebrates, and (3) material illustrating experimentally induced lesions of infectious diseases.

As was indicated in previous reports of this committee, the Registry of Veterinary Pathology offers diagnostic and consultative services to the veterinary profession. This service is rendered in exchange for the materials which are submitted to the Registry. During the year of 1947 a total of 1,296 cases were added to the Registry.

During the year, an increasing percentage of the animal cases in the files of the Army Institute of Pathology have been indexed by the IBM punch card system. This system greatly facilitates the location of cases selected for study or research, since materials are coded in such a way that they may be indexed by species, breed, sex, anatomic site of the lesion, and by the etiologic diagnosis. As of March 24, 1948, a total of 4,303 animal cases have been coded by this punch card system and are thus readily available for study and research. Thirty per cent of these cases are of neoplastic diseases and 70 per cent are non-neoplastic. An extremely wide variety of domesticated and wild mammals and birds as well as reptiles and other species are represented.

The Registry committee is sponsoring the publication of a monograph on veterinary necropsy procedures. The objective of this monograph is to have in one volume a detailed description of acceptable necropsy techniques of all species of animals, to encourage the careful conduct of such necropsies, and to stimulate interest in the proper collection of materials for laboratory examination. Chapters of this monograph are being written by 14 different authors, each of whom is outstanding in his field. It is expected that this volume will be completed by the Registry Press in October, 1948. It is believed that this publication will be of value to veterinary students, laboratory workers, and especially to practicing veterinarians.

The fellowship in veterinary pathology sponsored by the AVMA at the Army Institute of Pathology is still vacant. Many important opportunities exist for this fellow and this vacancy should be filled as soon as a qualified candidate can be secured. The committee is advised that the director of the Army Institute of Pathology has made facilities available for two such fellows to be in residence concurrently should suitable candidates be selected by the AVMA. Not only should these fellows receive extremely valuable training but they should also make important contributions to the Registry of Veterinary Pathology. The materials being received currently give an insight into the pathologic problems confronting veterinarians and their study, in conjunction with the materials

already in the files, affords unexcelled training opportunities.

A brief brochure, Veterinary Necropsy Techniques, was published during the year by the Army Institute of Pathology for distribution to Army veterinarians. This brochure was also distributed to the civilian contributors to the Registry. A printed form to facilitate recording necropsy findings was also made available to all contributors. This brochure and necropsy form have resulted in improvement in the selection of tissue and in the submission of data on cases submitted to the Registry. To be of maximum value for Registry purposes, cases submitted should have a complete clinical history and all postmortem findings should be carefully recorded. Veterinarians who have contributed material to the Registry are coöperating in this respect very satisfactorily.

In order to encourage the publication of particularly valuable cases and to include the pathologic findings in such cases, a policy was inaugurated during the year to select certain cases from the Registry for particular attention. When such a case is selected because of outstanding value, the contributor is asked to prepare a case report over his signature. The pathologic findings are then added by the Registry staff. Photographs and photomicrographs are made, the manuscript is edited, and returned to the contributor. The JOURNAL of the AVMA has indicated its willingness to feature such of these case reports as are accepted for publication, in a way to indicate that they are filed in the Army Institute of Pathology. It is felt that this policy will improve the quality and kind of case reports in the veterinary literature and will place more emphasis on the correlation of clinical and pathologic observations. A few such cases have been selected and case reports prepared. Others are in the process of preparation.

Progress has been made in selecting master study sets of histologic slides of several animal species. The selection of material for the histology of the pig, goat, cat, and dog are particularly well advanced. The completion of these master sets and their duplication in the form of loan sets has not been accomplished due to numerical limitations of personnel. This is an exceedingly important project and is basic to the understanding of the comparative aspects of pathology. There is considerable demand for authoritative information in this field, and it is hoped that further progress will be made during the coming year.

In the report of this committee for last year, it was indicated that a group of outstanding veterinary pathologists had been asked to serve as advisors to this committee. This advisory group serves to stimulate interest in veterinary pathology. Members act as consultants on material submitted to the Registry, and their experience and talents are available for any problem which arises concerning the Registry. Dr. Lee M. Roderick of Kansas State College, Manhattan, has recently accepted the invitation of the committee to join this advisory group.

It should be brought to the attention of the members of the American Veterinary Medical Association that the pathologic collections in the Army Institute of Pathology are available to veterinarians for study or research. Any qualified veterinarian who is interested in studying any phase of the collection during a visit to Washington is invited to do so. In order that the proper facilities will be available during the period selected, any veterinarian who desires to study at the Army Institute should communicate with the Director, Army Institute of Pathology, Washington 25, D. C.

Since the Registry of Veterinary Pathology was established, only $1,000 annually has been paid for its support. A similar amount is requested for the coming year. In addition, $50.00 is requested for secretarial service.

The committee on Registry of Pathology had one meeting during the year, at the Army Institute of Pathology, Washington, D. C., on Feb. 27, 1948. All members of the committee were present.

s/WILLIAM H. FELDMAN, Chairman
MAJOR T. C. JONES OSWALD L. OSTEEN
COL. JAMES E. ASH, ex officio

Special Committees

History

The Committee on History has continued through the year to perform its chief function—the collection and publication of technical and professional data showing the progress of veterinary science and its application in the United States and, to a lesser extent, in foreign countries. The effort to transform the Association's publications into a chronological account of passing events has become more and more successful through the coöperation of the officers of the component associations and independent members of the several states, who provide the editorial staff with salient information of historical value. While the highest possible degree of efficiency has not been attained, the historical-minded readers of our literature must have been impressed with the excellent chronological story told in the monthly issues. Special effort has also been made to gather and publish biographical data about deceased members in respect to their social and professional lives.

Dr. B. T. Simms, during his tenure as president, suggested that the committee should attempt to compile historical facts about the livestock sanitary situation in the 48 states—its origin and its development through the years. Before allocating the task to the members of the committee, the chairman launched a fact-finding program in two states—Illinois and Iowa—with the view of determining how much of that type of history is available to the casual inquirer. The results were disappointing but no less important to future committees who have the ambition and the means of searching through the statutes of 48 states for facts of dependable value. The truth is that collecting historical facts in that connection would require a search into law books published far back in the nineteenth century, when the first seeds of a livestock sanitary service were planted. Laudable and useful as such information would be, the committee is able to report that the task would require a well-planned program of research among legislative enactments of each of the states, together with the official regulations each one of the laws authorized. According to advice obtained from the Illinois Historical Society, the task would be difficult but not insurmountable should the Association find it advisable to compile such information beyond the plane of guess work and common knowledge.

The committee suggests for the coming year that a directory of state veterinarians of the

past and present, so far as obtainable, be published for 1949. It seems reasonable that such a directory for each year would be a pathway to the laws creating their office, the appointing authority, and the progress each of them made toward bettering the health of livestock in their states.

Selecting aged men for the Committee on History may not be as wise as it seems. Good history must be based upon research, not memory. Perhaps younger men who honestly believe that history is a useful branch of knowledge would better serve its purpose.

s/L. A. MERILLAT, Chairman
J. M. ARBURUA — G. H. GLOVER
R. S. MACKELLAR — J. R. MOHLER
J. L. TYLER — L. VAN ES

Nomenclature of Diseases

The reports of the past few years contained skeletal outlines of proposed systems for classifying, codifying, and cataloging the diseases of animals. These were reports of progress and submitted as evidence that the work of the committee was moving in the direction of its objective, namely that of assembling and arranging the names and terms used to designate the diseases of animals in North America.

Close inspection of the reports will show that the plans or schemata of classification underwent numerous revisions and modifications which was no simple matter when, for the most part, the work was carried on by correspondence. A schemata was adopted about a year ago and reference to it was included in the report submitted in 1947 (J.A.V.M.A., 111, [1947]: 434). Said report contained a paragraph which was to the effect that, on the suggestion of the editor of the "Standard Classified Nomenclature of Disease," the third and latest edition of the manual contained sufficient revisions, which, since it is to be used as a rule and guide by this committee and since the edition would soon come from the press, it might be advisable to delay the ultimate job of cataloging until the manual was available. The manual is now available and a copy is in the hands of each committeeman. Some work has been done toward cataloging the diseases of animals but the question of their assignment and allocation to specific categories has been the basis of debate among the committeemen. This was expected and is viewed by the committee as an important and necessary procedure and as something that should redound to the best interests of all concerned.

It is a time consuming and, ofttimes, a difficult job to debate and argue certain points which appear to be of considerable significance when it must be done by correspondence. For this reason, the committee recommends that a sum of money sufficient to provide for the expenses of the committee to meet for the purpose of compiling and allocating the items pertinent to the task of getting the lists in form for publication, be set aside.

s/H. C. H. KERNKAMP, Chairman
F. R. BEAUDETTE — I. A. MERCHANT
CARL OLSON, JR. — BENJ. SCHWARTZ

Food and Milk Hygiene

The importance of providing adequate protection to consumers of food of animal origin remains one of the greatest responsibilities of the veterinary profession.

The Special Committee on Food and Milk Hygiene has attempted during the year to review the problems associated with meat and milk production as they pertain to the regulatory aspects of veterinary hygiene.

During 1947, the total meat production in the United States amounted to approximately 23,300,000,000 lb. Of this total, approximately 16,236,000,000 lb. were produced under federal meat inspection. This is 69 per cent of the total meat produced. A review of the 1947 production and slaughter figures, by species, indicating total slaughter and federally inspected slaughter, as compared with figures reported by the Food and Milk Hygiene Committee in 1944, is of interest.

The decrease in the percentage of hogs receiving federal meat inspection reflects a shift back to the status of pork inspection prior to the war. The fact that the percentage of animals slaughtered in 1947 under federal meat inspection is no greater in relation to uninspected slaughter than it was in prewar years emphasizes the need for renewed effort in extending the benefits of adequate meat inspection throughout the United States.

Per Cent of Total Slaughter Produced Under Federal Inspection

	Pork	Beef	Veal	Mutton and Lamb
1943	74%	72%	51%	88%
1947	65%	70%	57%	88%

Records from federally inspected establishments indicate that over 7 per cent of all animals slaughtered are found to be affected with some abnormal or diseased condition which is seldom apparent except to especially trained inspectors. The rather large portion of meat produced in federally inspected plants that is found to be unfit for human consumption, indicates that the unsuspecting public is now receiving a considerable amount of unfit meat from that portion of the meat supply which is not subjected to adequate veterinary inspection. It is estimated that the amount of unfit meat produced in nonfederally inspected plants in 1947 was in excess of 40,000,000 lb. This should be of vital concern to public health officials, consumers, livestock producers, and those interested in veterinary hygiene.

The recognition and diagnosis of animal pathology, together with decisions relative to disposition, can be done only by trained veterinarians. Trained lay assistants may be used to detect and retain animals and carcasses that appear to be abnormal, but diagnosis and disposition must be made by a veterinarian.

The question of giving adequate supervision to trained lay assistants is one of the serious problems encountered in nearly all meat inspection systems. Even under those existing meat inspection systems where the veterinarian has the responsibility for administering the meat inspection ordinance, the supervision furnished during antemortem and postmortem inspection does not appear to be adequate.

In an attempt to determine the extent to which veterinary services are being utilized on the state, county, or local municipal level in the conduct of meat inspection, a questionnaire was sent to the official responsible for meat inspection in each state. The survey conducted by the committee revealed that only a few states have a state-wide meat inspection program which provides veterinary antemortem and postmortem inspection. A number of states reported such inspection being provided at the county or municipal level. Most states provide only a sanitary inspection of slaughtering plants

conducted by lay personnel. The committee received information which indicated that many municipalities are receiving adequate antemortem and postmortem inspection service conducted by veterinarians. It is apparent that there is considerable public interest in having a full antemortem and postmortem inspection of meat sold in these communities.

There is an urgent need for well-trained, capable personnel, particularly at the professional level, in all of the meat inspection systems studied by the committee during the past year. There is likewise a need for increased veterinary personnel to conduct federal meat inspection. In this connection, the committee strongly recommends that the federal meat inspection service utilize the services of junior veterinary students during holiday periods as technical assistants to veterinarians conducting antemortem and postmortem inspection. Students who have completed their junior year will, in most cases, have had five years or more of college training. A few students at the present time, will have completed four years of college training. The committee feels that these students would have received training which would qualify them to assist graduate veterinarians conducting antemortem and postmortem inspection. Their employment during the summer periods would permit relieving other inspectors for periods of vacation and thus their employment would be fully justified on an economic basis. The experience gained by these students in the proper conduct of inspection and in the recognition of gross pathology, together with a more complete understanding of the principles underlying proper disposition of diseased and otherwise unsound carcasses, would be of great value to them. It would not only properly qualify them for positions in food hygiene work following graduation but would also help them during their senior year. Such a program would also be of value to the meat inspection service in acquainting future veterinarians with the work of the federal meat inspection service and thus assuring the service of an adequate supply of well trained veterinarians.

The committee recognizes that the first step in a program designed to increase the number and caliber of veterinary personnel desirous of conducting regulatory meat inspection work should consist of creating a deeper appreciation of the importance and desirability of this type of work throughout the educational facilities of the veterinary profession. The committee, therefore, recommends the holding of a three-day meeting on the subject of meat inspection. Invitations have been extended to the deans of all North American veterinary colleges to participate in this program. The following letter was forwarded to the deans at the institutions listed below advising them of the committee's action and requesting their coöperation:

> The Special Committee on Food and Milk Hygiene of the AVMA feels that the holding of a seminar for professors teaching Meat Inspection at the various veterinary colleges would be advantageous at this time. Our committee is interested in getting your reaction to such a program, and would like to inquire whether a representative from your school could attend.
>
> The tentative plan is to hold a three-day meeting in Chicago, July 12 to July 14, 1948. In addition to having full discussions on meat inspection led by Washington Meat Inspection Division representatives, it is expected that there will be several demonstrations in practical meat inspection and meat packing plant operations. There will also be a follow-up in gross and micro-pathology at the Chicago BAI Pathological Laboratory.
>
> Please let us know, as soon as possible, whether a representative of your school could attend such a seminar. We will also appreciate any comments or suggestions you may wish to offer regarding this meeting.

Alabama Polytechnic Institute
Auburn, Ala.

Tuskegee Institute
Tuskegee, Ala.

University of California
Berkeley, Calif.

University of Toronto
Guelph, Ontario, Can.

Iowa State College
Ames, Iowa.

Kansas State College
Manhattan, Kan.

Michigan State College
East Lansing, Mich.

University of Minnesota
St. Paul, Minn.

Universite de Montreal
Quebec, Can.

Colorado A. & M. College
Fort Collins, Colo.

University of Georgia
Athens, Ga.

University of Illinois
Urbana, Ill.

The Ohio State University
Columbus, Ohio.

University of Missouri
Columbia, Mo.

New York State Veterinary
College, Cornell University
Ithaca, N. Y.

Oklahoma A. & M. College
Stillwater, Okla.

University of Pennsylvania
Philadelphia, Pa.

Texas A. & M. College
College Station, Texas.

State College of Washington
Pullman, Wash.

At the time of the filing of this report, responses to this inquiry have not been received. Our committee anticipates sufficient interest in this program, and plans for holding a seminar are being made.

POULTRY INSPECTION

There has been a tremendous increase in the volume of eviscerated poultry marketed during the past few years as compared with prewar figures. During the prewar period, approximately 95 per cent of the eviscerated poultry marketed received postmortem inspection. It is evident, however, that only a small portion of the increased volume is being marketed under inspection since recent figures indicate that only 50 per cent of eviscerated poultry being marketed at this time is under inspection.

The total dressed poultry production of this country amounts to nearly 2,000,000,000 lb. annually. Of this total, approximately 22 per cent was eviscerated before entering market channels. Only 203,101,031 lb., or approximately one-half, of the eviscerated production received veterinary inspection. Of the inspected production, 1,620,338 lb. were rejected as being unfit for human consumption.

The committee feels that the percentage of the total dressed poultry production at present receiving veterinary inspection (11%) is far too small to be consistent with good food hygiene practices. The committee, therefore,

urges the enlargement and extension of this type of inspection.

MILK HYGIENE

According to the Bureau of Agricultural Economics, there was produced in the United States in 1946 122,000,000,000 lb. of milk. Sixty billion pounds of milk were used in a fluid form —48,000,000,000 in cities and villages and 12,000,000,000 on farms and in small communities. The fluid milk consumed in cities and villages is largely pasteurized, while that on farms and in small communities is consumed raw. According to these figures, 20 per cent of the fluid milk used in the United States is consumed raw. To protect the consumers of this raw milk the committee wishes to present four (4) recommendations for consideration:

(1) That pasteurization be universally adopted by all states;
(2) That all animals producing milk for fluid purposes be tested for bovine tuberculosis annually;
(3) That all animals producing milk for fluid purposes be tested for brucellosis and maintained free of this disease; and
(4) That the udders of all animals producing milk for fluid purposes be subjected to rigid physical examination, and that unsound animals be eliminated from herds producing milk for human consumption.

To insure the success of a milk sanitation program that includes the above recommendations, it is necessary that a well-qualified veterinarian be responsible for the development and administration of such a program.

In addition to the 60,000,000,000 lb. of milk used for fluid purposes, there are 22,000,000,000 lb. used for butter production, 10,000,000,000 lb. for cheese manufacture, and 8,500,000,000 lb. for ice cream manufacture. To insure the safety of these products, it is recommended that they all be pasteurized before entering market channels.

The remainder of the 122,000,000,000 lb. of milk produced in the United States is used as follows: 7,000,000,000 for evaporated milk, 1,500,000,000 for dry whole milk and 700,000,000 for condensed purposes. Inasmuch as milk used for these manufacturing purposes is exposed to adequate heat treatment, it can be assumed to be safe if it is produced from healthy animals under proper sanitary conditions. In addition, 13,000,000,000 lb. are used on the farm for other purposes than fluid consumption.

To develop a program which will offer the maximum protection of dairy products, it is the responsibility of the veterinarian to educate both health officials and citizens of his community to the need for adequate milk sanitation.

The committee would like to point out the need for both organized and individual effort on the part of veterinarians and veterinary societies in promoting adequate antemortem and postmortem meat inspection systems throughout the country. We feel that this can best be accomplished through educational programs designed to acquaint the public with the need for this type of veterinary service and, in addition, veterinary groups should assume the leadership in the enactment of proper legislation at both local and state levels.

In the January and June, 1946, issues of the Journal of the American Veterinary Medical Association two outlines were published, which will be found to be very helpful in setting up a meat inspection system. The outline entitled "Inspection of Human Food, Outline for the Preparation of Governing Legislation" was printed in January, 1946, on pages 25 and 26. "The Proposed Code for the Inspection of Human Food" was printed on pages 389 to 392 in June, 1946. Reprints of both of these publications are available upon request.

As a profession, we must not overlook or ignore our responsibility of providing protection to consumers of food of animal origin.

We urge the continuance of the Special Committee on Food and Milk Hygiene.

s/H. E. KINGMAN, JR., Chairman
G. H. HOPSON — C. H. PALS
E. M. LYNN — J. H. STEELE

Transmissible Diseases in Food-Producing Animals

This report constitutes a tabulation of the diseases of the various species of food producing animals by seasons of the year. This should be helpful in focusing attention on the important seasonal disease problems so that a calender may be compiled which, in turn, should be help-

TABLE I—Seasonal Incidence of Cattle Diseases—Range, Dairy, and Native

Disease	Spring	Summer	Fall	Winter
Actinobacillosis	X	X	X	X
Actinomycosis	X	X	X	X
Anaplasmosis	..	X	X	..
Anthrax	..	X	X	..
Aujeszky's disease	..	X	X	..
Bacillary icterohemoglobinuria	X	..	..	X
Blackleg	X	X	X	..
Brisket disease	X	X	..	..
Brucellosis	X	X	X	X
Coccidiosis	..	..	X	X
Carditis—endo-, myo-, and peri-	..	..	X	X
Enteritis & gastritis	X	..	X	X
Foot-and-mouth disease	X	X	X	X
Foot rot	X	..	X	X
Hemorrhagic septicemia	..	..	X	X
Hepatitis	X	..	X	X
Impaction & indigestion	..	..	X	X
Johne's disease	X	X	X	X
Keratitis pink eye	..	X	X	..
Malignant edema	X	X	X	..
Mastitis	X	X	X	X
Malignant catarrhal fever	X	..	..	X
Metritis	X	..	X	..
Mineral deficiency diseases	X	X	X	X
Necrobacillosis	X	..	X	X
Neoplasms	X	X	X	X
Nephritis	X	..	X	X
Parasites Internal				
Nematodes	X	X	X	X
Tenia	..	X	X	X
Distoma	..	X	X	X
Parasites External				
Mange mites	..	..	X	X
Lice	..	..	..	X
Grubs	..	..	..	..
Ringworm	..	..	..	X
Ticks	X	X	X	X
Pleurisy	..	..	X	X
Pneumonia	..	..	X	X

TABLE 1—Continued

Disease	Spring	Summer	Fall	Winter
Poisoning				
Chemical	X	X	X	X
Plant	X	X	X	..
Pulmonary edema	..	..	X	X
Rabies	X	X	X	X
Stomatitis				
Vesicular	..	X	X	X
Mycotic	..	X	X	..
Necrotic	..	..	..	X
Southern, splenic, or Texas fever	X	X	X	..
Tetanus	X	X	X	..
Tick paralysis	X	..	..	..
Trichomoniasis (genital)	X	X	X	X
Tuberculosis	X	X	X	X
Tympanites	X	X	X	..
Urolithiasis	..	..	X	X
Vaginitis (infectious)	X	..	X	..
Vitamin deficiencies				
Vitamin A	X	..	X	X
Vitamin B complex	..	..	..	..
Vitamin D	..	..	..	X
Vitamin E	X	..	X	X
Vitamin K	..	..	..	X
Other	X	X	X	X
Warts	X	..	..	X
X-disease (hyperkeratosis)	..	..	..	X

ful in preparing material for news releases, radio script, and other information. Also, it should be helpful to the central office, public relations counsel, and the program chairmen of the various sections of the AVMA and its constituent associations.

The committee has made an attempt to ob-

TABLE 2—Seasonal Incidence of Swine Diseases

Disease	Spring	Summer	Fall	Winter
Abscesses of neck	..	X	X	X
"Anaplasmosis-like disease"	..	X	X	..
Anemia	X	..	..	X
Anthrax	X	X	X	X
Arthritis (pyemic)	X	X	X	..
Arthritis (nutritional)	X	..	..	X
Aujeszky's disease (pseudorabies)	..	X	X	..
Balantidium coli	X	X	X	..
Brucellosis	X	X	X	X
Coliform infection	X	X	X	..
Corynebacterium infection	X	X	X	X
Dysentery	X	X	X	X
Enteritis	X	X	X	X
Erysipelas	X	X	X	X
Gastroenteritis (transmissible)	X	X	X	X
Hog cholera	X	X	X	X
Hypoglycemia	X	..	..	..
Influenza	..	..	X	X
Lice	..	..	X	X
Listerellosis	..	..	X	..
Malignant edema	X	X	X	..
Mange (demodectic)	X	..	..	X

TABLE 2—Continued

Disease	Spring	Summer	Fall	Winter
Mange (sarcoptic)	X	..	X	X
Myoclonia congenita (shakes, shivers)	X	X	X	X
Necrobacillosis	X	X	X	X
Otitis media	..	X	..	..
Parasites				
Internal				
Ascarids	X	X	X	X
Thornheaded worms	X	X	X	X
Nodular worms	..	..	X	X
Pasteurellosis	X	X	X	X
Photosensitization	X	X	..	..
Pneumonia	X	..	X	X
Pox	..	..	X	X
Rabies	X	X	X	X
Rhinitis (infectious)	X	X	X	..
Ringworm	..	..	..	X
Salmonellosis	X	X	X	X
Scours	X	X	X	X
Tuberculosis	X	X	X	X
Uremia	X	X	..	..

tain a general cross section of disease incidence in the United States and Canada by consulting members of the profession, drawing on our own experience, and supplementing this with information found in the published literature. It must be realized that, on account of the variant

TABLE 3—Seasonal Incidence of Sheep Diseases—Range and Feedlot

Disease	Spring	Summer	Fall	Winter
Actinobacillosis	X	X	X	X
Anthrax	..	X	X	..
Blackleg	..	X	X	..
Caseous lymphadenitis	..	..	X	X
Chronic progressive pneumonia	..	..	X	X
Coccidiosis	..	..	X	X
Contagious ecthyma	..	..	X	X
Enterotoxemia	X	X	X	X
Foot-and-mouth disease	X	X	X	X
Infectious keratitis	..	..	X	X
Infectious necrotic hepatitis	..	X	..	..
Keratitis—pink eye	..	X	X	..
Ketosis (pregnant ewes)	X	..	..	X
Listerellosis	..	..	X	X
Malignant edema	..	X	X	..
Mastitis	X	..	..	X
Mineral deficiency diseases	X	X	X	X
Navel, docking, and castrating infections	X	..	..	X
Necrobacillosis (secondary to infectious ecthyma)	..	..	X	X
Parasites				
Internal				
Nematodes	X	X	X	X
Cestodes	X	X	X	X
Trematodes	X	X	..	..

TABLE 3—Continued

Disease	Spring	Summer	Fall	Winter
Parasites				
External				
Keds	X	..	X	X
Lice	..	..	X	X
Mites	..	..	X	X
Plant poisoning	X	X	X	..
Pneumonia	X	..	..	X
Rabies	X	X	X	X
Scours	X	..	..	X
Shipping fever	..	..	X	X
Urinary lithiasis	..	..	X	X
Tetanus	..	X	X	..
Verminous pneumonia	..	..	X	X
Vibrionic abortion	X	..	..	X
"White muscle" disease	X	..	..	X
Vitamin A deficiency	X	..	..	X

conditions and the extensive area covered, there are bound to be differences of opinion and of fact. These are brought out by an undertaking such as this. It is with this bit of caution that we submit this report.

s/L. D. FREDERICK, Chairman
G. S. HARSHFIELD E. M. JONESCHILD
J. D. RAY J. T. SCHWAB

Diseases of Wild and Furbearing Animals

The diseases which the Committee on Diseases of Wild and Furbearing Animals has been delegated to study may logically be classified under the following headings as they affect various groups or individuals:

1) **Conservationists and Sportsmen.**—Botulism, foot-and-mouth disease, brucellosis, rabies, lead poisoning, tularemia, plague, hemorrhagic septicemia, fowl cholera, avian pneumoencephalitis (Newcastle disease), pullorum disease, tuberculosis, and quail disease.

2) **Fur Ranchers.**—Distemper, encephalitis, Chastek paralysis, panniculitis (yellow fat), salmonellosis, botulism, anthrax, and nutritional anemia.

3) **Public Health Officials.**—Tularemia, plague, tuberculosis, brucellosis, rabies, anthrax, erysipelas, poliomyelitis, and encephalitis.

These are not complete lists, but merely important examples showing their specific place of interest. These diseases of wild, or originally wild, animals continue to gain a conspicuous place in our minds as we become better acquainted with them. A great deal has been learned about these diseases but more remains to be learned, and much of the information gained is not readily available to the average veterinarian or to the public.

The responsibility of studying and controlling diseases under group 1 rests with the U. S. Fish and Wildlife Service. Much good work has been accomplished by that agency, particularly in regard to botulism and lead poisoning of waterfowl, rabies of wild furbearing animals, and the control of brucellosis in buffaloes. However, a considerable increase in personnel is needed to do justice to the magnitude of the studies involved. As federal funds for that purpose are insufficient to care adequately for wildlife disease problems, state conservation departments and universities are urged to participate in that work and to correlate their findings with the Fish and Wildlife Service. Little is known in regard to virus diseases which may be carried by migratory birds; this study offers a big challenge.

The committee is pleased to report that as a result of our suggestions in 1947, the Bureau of Animal Industry dispatched a scientist (Nelson Elliott) to Mexico to study the susceptibility of deer and other wild species to foot-and-mouth disease and their relationship in this respect to domestic stock. After writing this report, we received a letter from Dr. Elliott in April from which we quote: "Thus far in studies being conducted in Mexico, the disease has not been diagnosed in the deer or peccary, and indications are favorable that these animals are not infected. Provided that the disease is confined to the zone now infected, the danger of the susceptible wild animals becoming infected will perhaps be slight.

"In a program of this nature, reports of foot-and-mouth disease being observed among wild animals are not lacking; however, most of them are perhaps made entirely without foundation. To date none of the reports have been substantiated."

In July, 1946, the responsibility of studying diseases of furbearing animals was transferred to the U. S. Bureau of Animal Industry. Research by that agency has been conducted on paratyphoid, botulism, panniculitis of mink, and other diseases. A good start has been made, but expansion is needed badly. It is our opinion that nutritional diseases of these animals are the biggest problem, directly or indirectly, responsible for the majority of the losses. It is urged that emphasis be placed on research of nutritional diseases. This is the subject about which the most has been written, but the least is known. Trade journals have carried numerous articles on diseases of furbearing animals which are opinionated and misleading.

It is gratifying to note that the U. S. Public Health Service recently has established a new division dealing with diseases of animals transmissible to man. It is hoped that wildlife investigations may benefit by this new service. It is urged that the three groups work closely together, making information they gain available to others.

Those of us who for years have been in close contact with diseases of wild, captive wild, and furbearing animals are impressed with the fact that information relative to such diseases needs to be properly disseminated to practicing veterinarians. They may then be in a position to offer competent service to clients when consulted. Only too frequently has it been brought to the attention of the members of this committee that, when a rancher needs help, his veterinarian tells him that he does not know much about mink and foxes, and that he is too busy to look it up in the literature and cannot be bothered with it. So the rancher gets discouraged and goes to the drugstore where he buys medicine or vaccine, and perhaps does his animals more harm than good, but who is to blame? Is it the veterinarian because he has not taken the pains to acquaint himself with the problems of a relatively new, but rapidly growing industry? Or are the schools of veterinary medicine to blame for neglecting to incorporate in their curriculums instruction on the diseases of furbearing animals and other wildlife?

To remedy this situation, this committee recommends that the AVMA use its influence to:

1) Include the teaching of diseases of furbearing animals and wildlife in the curriculums of veterinary colleges, and to stimulate interest and research in this field.

2) Establish a center where all information on diseases of wild animals including those in captivity, zoos, etc., and domesticated fur-

bearing animals may be assembled and disseminated.

3) Assist in production of an adequate textbook covering all the diseases of wildlife.

s/E. R. QUORTRUP, Chairman
R. J. KIRK — A. C. SECORD
A. M. McDERMID — S. G. STEPHAN

Diseases of Small Animals

This committee has completed the manuscript for a booklet about parasites of dogs and other pet animals. This illustrated booklet, when completed, will be available for distribution by the veterinarian to interested laymen, kennel owners, pet shop operators, and clients.

The committee has also been active in answering correspondence received by the American Veterinary Medical Association pertaining to diseases of small animals.

The many requests from owners of dogs regarding the problem of convulsions is alarming. It would seem, from these inquiries and from information gained from practicing veterinarians, that this problem is the greatest confronting the small animal practitioner at this time. The problem is so grave in some communities that kennel clubs and interested dog owners have, in some instances, seen fit to spend time discussing this problem. These groups are astonished when they find that research in this field is minimal.

This committee, realizing the seriousness of the problem, is asking that the president appoint a special committee to make a survey and recommend means for obtaining new information regarding the control of this disease, or diseases.

s/WAYNE H. RISER, Chairman
C. E. DeCAMP — L. C. MOSS
H. C. STEPHENSON

Motion Picture Library

The completed films acquired by the committee this year are as follows:

Johne's Disease (Paratuberculosis)—Animal Disease Research Laboratory, Auburn, Ala.
Cataract Surgery in the Dog—G. W. Shetter, M.D., and J. B. McQuown, D.V.M., Tucson, Ariz.
The Use of the Stader Reduction Splint in Treating Fractures of Small Animals.
The Use of the Stader Splint in Bone Lengthening Operations.
Application of Stader Reduction Splint for Fracture of the Tibia.
Application of Modified Stader Reduction Splint (Os Calcis).

These films have been added to the film listing, bringing the total to 20 which are available to the veterinary profession.

Each year shows an increase in demand for these films used in teaching or as part of programs throughout the country. The requests for each of the listed films last year were as follows:

6 Surgery of the Bovine Eye—Dr. James Farquharson, Colorado A. & M. College.
2 Swine Surgery—Dr. John F. Bullard, Purdue University.
7 Brucellosis in Swine—Dr. L. M. Hutchings, Purdue University.
3 Gastric Fistula Technique and the Interior of the Bovine Stomach—Dr. A. F. Schalk and associates, The Ohio State University.
14 Newcastle Disease—Dr. P. P. Levine, Cornell University.
3 Administration of Medicines to Sheep—Dr. J. G. Whitlock, Cornell University.
3 Control of Bovine Tuberculosis in California—California State Department of Agriculture.
1 From Range to Range—A Story of California State Meat Inspection—California State Department of Agriculture.
1 Meats with Approval—U. S. Department of Agriculture.
4 Skeletal Fixation by the Stader Splint—Fractures of the Tibia—A Navy training film prepared for the Bureau of Medicine and Surgery, U. S. Navy—Bureau of Aeronautics.
2 Skeletal Fixation by the Stader Splint—Fractures of the Os Calcis.
9 Bovine Surgery—Dr. E. R. Frank, Kansas State College.
6 Pullorum Disease Control—California State Department of Agriculture.
2 Vesicular Exanthema of Swine—California State Department of Agriculture.

As rapidly as possible, when films are not in use, an introductory title film bearing the AVMA insignia in color and the legend "From the Motion Picture Library of the American Veterinary Medical Association" is being added to the beginning of each motion picture. A similar closing title is being added to the end of each film. This will visibly impress the audience of the source of the picture being shown.

An earnest appeal is made to members of the veterinary profession to produce motion pictures of interest, either medical or surgical, for addition to the film library. Production to date has been very slow and it is hoped that in the future more pictures will be produced.

It is recommended that the committee be continued and that sufficient funds be appropriated for the purchase of new films, either silent or sound.

s/J. R. DINSMORE, Chairman
A. G. BOYD — W. J. GIBBONS
A. G. DANKS — C. B. KRONE

Veterinary Service

Three projects were carried out by the committee.

1) A new survey was made to determine the extent to which complete diagnostic facilities are available in the various states. This letter of inquiry was accompanied by some statistical data on incidence of disease, morbidity, and mortality which the committee felt would assist those states seeking financial support to provide complete diagnostic facilities.

2) A survey was made to determine the extent to which annual renewal or registration is required of licensed veterinarians. Some embarrassing incidents have been called to our attention which might have been prevented if each state had some type of annual registration of its licensed veterinarians.

3) A letter was sent to the deans of the veterinary colleges recommending incorporation of a course covering such subjects as veterinary economics, public relations, ethics, and jurisprudence. Such courses are now a part of the curriculum in some of the schools.

SUMMARY ON THE QUESTIONNAIRE RELATIVE TO DIAGNOSTIC SERVICE

Questionnaires were sent to all states, Hawaii, Puerto Rico and the Virgin Islands. Replies from at least one of the agencies written (state veterinarians, deans of veterinary divisions and

veterinary departments in colleges) have been received from all but two states.

Question 1.—Does your state have a laboratory or laboratories offering complete diagnostic services to the veterinarians and their clientele?

Thirty-four states answered **yes** by state official and/or the veterinary college or department.

Ten states had **no** on part of state official and/or veterinary college or department.

According to replies from state officials and institutions, five states had conflicting opinions regarding complete diagnostic services.

Two states did not report.

Question 1a.—If you have such services, would you please indicate the number of laboratories and their location.

Kind and number of laboratories varies. Some states have one. A few have as many as four or five with specific divisions of activities with a very complete service at each specialized laboratory.

Question 2.—Is this activity under the supervision of the state veterinarian, the veterinary division of the university, or the experiment station?

Twenty-two states reported facilities under administration of state veterinary official.

Twenty-one states reported facilities under supervision of veterinary college, department or experiment station.

The others seem to be administered jointly.

Question 3.—Are the laboratories under the supervision of a veterinarian, other technically trained personnel, or others?

Most laboratories are under supervision of veterinarian and/or other technically trained personnel.

Question 4.—If your state does not have the facilities you think desirable, what are you planning?

Twenty-two states, some of them offering extensive facilities, indicate definite plans for expansion. Some of the states have mediocre or no facilities and have no plans for expansion.

ACTIVITIES FOR FUTURE PROGRAMS

Due to the fact that the scope of this committee is broad and includes activities not specifically assigned to other committees, we recommend that, as a program for future work, this committee **put into action** certain activities previously suggested by it. Much ground work has been done and the information can be found in previous reports of the committee (Post-War Planning and now Veterinary Service). It is now time that some of this information should be put into use by action programs. It is realized that the ability of organized veterinary medicine to activate our proposals is handicapped at the present time because of the shortage of veterinary personnel; however, this fact should not deter us from going ahead with a sound planning program. Priority of action should be determined by the committee selected for each year. Following are some of the activities suggested for it to pursue in the future:

1) **Age Trends.**—That a survey be made about every five years to ascertain the age distribution of veterinarians compared to the general population. This information should be a matter of permanent record kept up to date and available to be used as a partial basis for determining needs for veterinarians.

2) **Drug Store Sales.**—Studies of drug store sales should be kept up to date, as a matter of information for the AVMA, by this committee or another if preferred by the Executive Board. Furthermore, it is recommended that an additional program be enacted that will:

a) Point out to livestock owners the losses incurred and danger involved through promiscuous and needless use of drugs and biological products. The big monetary cost to livestock owners from drug store purchases is the fact that, through high powered salesmanship, they buy and use a great deal of material not needed. In many cases the feeling of false security which develops, leads to negligence or complete omission of correct veterinary service and supervision, and the end result is heavy mortality and concurrent economic loss. This problem must be approached on a sound and logical basis stressing the importance and value of proper diagnosis in disease control.

b) Assist veterinarians in developing a more effective relationship with their clientele and the general public. This is a matter of salesmanship and involves to a large degree the participation of the practitioner in community activities other than specific veterinary medicine.

3) **Distribution of Veterinarians.**—Veterinary service in marginal and submarginal areas is inadequate and very large numbers of animals have no veterinary supervision or attention. We must continue to search for methods of providing veterinary service in these areas with the idea of developing ar[illegible] having available concrete suggestions and recommendations.

4) **Internship.**—The committee believes a postgraduate course in practice with a progressive practitioner will give invaluable assistance to the recent graduate. It would be advantageous and a matter of personal gratification to the practitioner to know that he had assisted in producing and training a well-qualified man in the traditions and effectiveness of the profession. The state boards of veterinary examiners are urged to give thought to internship as a requirement for permission to practice. (The suggestion for internship and its requirement as a prerequisite for practice would be superfluous unless the colleges can organize to supervise such training.)

5) **Professional Relationship.**—Replies to previous inquiries showed that, in general, the relationships between practitioners, state, federal, and institutional veterinarians are good, while in some places there are some very rough spots. Further study is advisable in order to foster and promote better congeniality and coördination.

6) **The Veterinarian and Public Health.**—This is a large field offering many opportunities for veterinarians and for veterinary medicine to render a service. The needs are numerous and demanding of our attention.

Veterinarians should be informed relative to their place in the field of public health, opportunities for employment, what it means and all its implications to human health and the veterinary profession. Short, well-prepared, and illustrated articles are advised. Material previously obtained by this committee and that which can be obtained from the U. S. and state public health units is applicable. We must be alert to the potentialities of this phase of medicine.

7) **The Practicing Veterinarian in the Control of Infectious Diseases.**—Including the services of the practicing veterinarian in control and eradication of infectious diseases is a step toward more effective disease control. That his usefulnes can be extended is evidenced by the fact that some states have no working agreement with the practitioners while others have very effective coöperative arrangements. Veterinarians responsible or in a position to improve or initiate coöperative programs are urged to foster the development of such programs. Material improvement has been made in this problem as a result of previous work done by this committee. It is suggested that it

continue to study the problem and offer specific recommendations if and where the facts warrant them.

8) **Professionalism.**—The committee believes that we should be continuously on the alert to create a closer bond among ourselves as professional men.

9) **Veterinary Services and Placement.**—Periodically this committee should compile information relative to distribution of veterinarians, livestock populations, size of farms, types of salaried positions held by veterinarians, etc. This would be primarily a fact-finding service, the material to be compiled and kept at some central place and to be available to any committee of the AVMA for furthering the useful and beneficial placement and employment of veterinarians. Over a long period, this type of information should be most useful in helping veterinarians find locations and employment and to provide the talents of individuals trained in veterinary medicine for positions in allied fields.

Specifically, we suggest that the Committee on Veterinary Service next year consider giving priority **of action** to one, or perhaps both, of the following problems (mentioned above), unless conditions dictate otherwise.

1) Drug store sales (2 above).
2) Extending the usefulness of practicing veterinarians in control programs (7 above).

Distribution of veterinarians (No. 3) and the veterinarian and public health (No. 6) should come high on the **action** list, but until more men are available or practice is less lucrative, little can be accomplished.

Recommendation.—In order to maintain continuity of effort and to carry on the work started by this committee in previous years, and to use **(by action)** the material already assembled, it is necessary that there be provision for a standing committee on veterinary service. We further suggest that this be a five-man committee with staggered membership so that there will be at least two holdovers each year. As time progresses, much information obtained by this "catch all" committee will necessarily be of value and specifically applicable to other committees such as: Public Relations, Education, Therapeutic Agents and Appliances, Food and Milk Hygiene, etc.

Therefore, we recommend that **The Committee on Veterinary Service Be Made a Five-Man Standing Committee, Appointments Being Staggered so as to Always Have at Least Two Carry-over Members.** It is suggested that this committee be instructed to meet early in the fall and to present its proposed program to the Executive Board at the December meeting. It would be advisable, but not necessary, if the membership of the committee could carry a man from each of the following groups: state regulatory, educational institutions, practitioners, public health, and the U. S. Bureau of Animal Industry.

s/W. T. OGLESBY, Chairman
SETH C. DILDINE H. L. FOUST
J. TRAUM E. A. WOELFFER

National Board of Veterinary Examiners

It is proposed that a national board of veterinary examiners be sponsored by the American Veterinary Medical Association.

The purpose of this board shall be to establish a qualifying examination of such a character that the certificates awarded successful candidates may be acceptable to all state veterinary examining boards as ample evidence of professional qualification for the practice of veterinary medicine, subject to the licensing requirements of the laws of the various states. It is also hoped that such certificates may be acceptable to municipal, state, federal, and military services in lieu of the examinations now required for each of these services.

The examination would be divided into three parts:

Part I.—To be taken by undergraduates any time after completing two years of the professional curriculum and to cover the basic medical sciences.

Part II.—Taken by students after graduation from the professional courses and to cover all the subjects in the veterinary curriculum not covered in Part I. To be eligible for Part II, a student must have successfully completed Part I.

Part III.—This would consist of a clinical and practical examination to determine the student's adaptability to perform the functions expected of a veterinarian.

The details of the conduct of the examination and the cost of such examination are to be worked out by the board once it is duly organized.

It is believed that the functioning of such a board would exert a marked influence in gradually raising and standardizing the qualifications for the practice of veterinary medicine and thus serve to establish the profession more firmly and favorably in all communities and services in which veterinarians may be utilized.

MEMBERSHIP OF THE BOARD

The membership of this national board of veterinary examiners should have representation from many branches of the profession and in proper proportions. Our Committee, therefore, recommends the following:

Council on Education of the American Veterinary Medical Association	2 members
National Conference of State Veterinary Examing Boards	5 members
Veterinary college faculties	5 members
Research workers in animal disease in North America	1 member
Practitioners	6 members
Bureau of Animal Industry (chief)	1 member
United States Army Veterinary Corps (head)	1 member
Veterinary Division of the United States Public Health Service (chief)	1 member
National Assembly of Chief Livestock Sanitary Officials (state veterinarians)	1 member
American Veterinary Medical Association (president and executive secretary)	2 members
Elected by the National Board of Veterinary Examiners	5 members

Thus, it will be noted that the board is to be composed of five ex-officio members and 25 elective members.

The five members to be elected by the national board need not all be veterinarians.

Some non-veterinarians of professorial rank, teaching in veterinary colleges, may be selected.

Of the six practitioners to serve on the board, five are to be elected by the House of Representatives of the American Veterinary Medical Association and one elected by the American Animal Hospital Association. The election of other members of the board shall be made by the respective organized groups which they represent.

In the selection of members of the board, attention should be given to geographical distribution.

The tenure of office of elected members shall be for three years; a member shall not succeed himself more than once. The term of office of the first 25 members shall be determined at the first regular meeting of the Board. At this first meeting, a preliminary organization is to be established and a constitution and by-laws adopted, such as may be necessary to govern activities of the board and cover the term of office and duties of the officers. After having completed the organization and establishment of their program of operational procedures, the board shall proceed to file an application for charter under the laws of such state as may be recommended by counsel (medical and dental boards are chartered under laws of the State of Maryland).

Upon securing a charter, the national board shall perfect a permanent organization in accordance with the stipulation in the constitution and by-laws. It shall, thereafter, constitute itself a committee of the whole, to place the proposition of the National Board examination before all veterinary faculties, state veterinary examining boards, state and local veterinary organizations for their consideration; and shall also aid such organizations in their endeavors to secure the passage of such state laws or amendments to existing laws as will make possible the utilization of the services of the national board by the several states.

The requirements for admission and plans for examination shall be worked out by the national board after having collected for study all the requirements for admission to the several veterinary colleges in America and the state laws now in effect governing the examination of graduate veterinarians for a license to practice. It is highly advisable that all students be sufficiently well prepared upon their date of graduation to pass any reasonable examination that might be promulgated. Such examinations above all must be fair, not interspersed with catch questions, but planned to draw out the real scope and thoroughness of training and to determine ability to remember details. Successful candidates would receive a diploma certifying to their record as of the date of their final examination, which should be acceptable to the several state boards of veterinary examiners and agencies employing veterinarians. The holders of such certificates would be known as diplomates of the national board of veterinary examiners.

It is the feeling of the Committee that the actual details of operations should be left entirely to the national board of veterinary examiners after it is organized and should be sufficiently flexible to meet situations which may arise as the program expands.

Questions and Answers Relative to the Proposed National Board of Veterinary Examiners

1) Q.—What is meant by a national board of veterinary examiners?

   A.—The proposal calls for a board representing all organized branches of the veterinary profession to conduct comprehensive examinations in keeping with modern veterinary education, and to issue certificates to those who successfully pass such examinations. In the United States, medicine, dentistry and architecture have such boards. In the British Isles, the licensing of veterinarians by such a Board has been in operation since 1881.

2) Q.—Is this a new venture or has it been under consideration for some time?

   A.—At a special meeting of the California State Veterinary Medical Association in January, 1935, a special committee was appointed to study the possibilities of setting up a central board of veterinary examiners for the United States. The Committee prepared a report and was instructed to present the information obtained to the AVMA Executive Board for consideration. This was done and a special committee was appointed by the chairman of the Executive Board of the American Veterinary Medical Association to study this matter. This committee composed of Drs. L. M. Hurt, O. V. Brumley, and C. H. Hays, reported their findings and recommended the establishment of a central board of veterinary examiners at the 1936 meeting of the AVMA. However, there is no record of any official action ever having been taken on this report by the Executive Board.

   The present committee came into being as a result of discussions in the House of Representatives of the AVMA during the annual meeting held in St. Louis in 1943, relative to the licensing of veterinarians. The Committee has not acted in haste, but has studied the problem from all angles and is now proposing that such a board be sponsored by the Association.

3) Q.—What effect would a national board of veterinary examiners have upon a state licensing and examining board?

   A.—None whatever, except in so far as it may stimulate improvement in the type of examination now given in some states. It would be entirely optional with examining boards as to whether they wished to accept the national board examinations in lieu of their own. In many cases, it would require change in the practice acts in the various states. The state boards would still retain the right to determine who should be given a license, and, even though the law was changed to permit them to recognize the certificate of the national board as evidence of professional efficiency, their

powers to issue and revoke licenses would be unchanged.

4) Q.—Will it be mandatory for a state licensing board to give a license to a diplomate (holder of a certificate) of the national board of veterinary examiners?

A.—No. While the state board might recognize the certificate from the national board as evidence of professional efficiency, it would retain full power to accept or reject each applicant for a license.

5) Q.—Would a national board of veterinary examiners have any licensing powers?

A.—Absolutely not. This is merely a proficiency board designed to determine an applicant's qualifications in the field of veterinary medicine. The state and other agencies may or may not accept the findings of this board in lieu of special examinations of their own.

6) Q.—What effect would such a program have on reciprocity between states?

A.—If we are to judge from the experience in medicine, reciprocity between states would be greatly extended, but would not be mandatory.

7) Q.—What benefits are to be derived from such a board?

A.—Briefly they may be listed as follows:

1) Raise the standards of veterinary education by:
   a) stimulating scholarship in students;
   b) stimulating teachers in various fields to better prepare their students for such examinations;
   c) bringing more uniformity into the veterinary curriculums;
   d) having the results of these examinations serve as a yardstick for measuring the educational standards in the various schools.
2) Elevate the standards of veterinary examinations as now conducted in many states.
3) Stimulate more reciprocity between states.
4) Eliminate the necessity of special examinations for all the various veterinary services.

8) Q.—Who would be represented on such a board and how would their representatives be chosen?

A.—In setting up this proposed board, an attempt has been made to provide representation from all branches of the veterinary profession in proper proportion. Five are ex-officio members, and 25 are nominated by organizations representing the various segments of the profession.

9) Q.—Would the board be dominated by the American Veterinary Medical Association?

A.—No. The American Veterinary Medical Association is interested in such a board because this Association represents organized veterinary medicine and is continually trying to promote the best interests of, and higher standards for, the profession. Once the board is organized and chartered, it will operate independently.

10) Q.—What action will be necessary for the respective states to participate in this program?

A.—This will vary in the different states. Some licensing boards already have the power to accept the certificate of a national board if they so desire. In other cases, it may be necessary to change the practice act so that certificates of proficiency from a national board can be recognized in lieu of an examination by the state licensing board.

s/W. R. KRILL, Chairman

C. W. BOWER — R. R. DYKSTRA
W. L. BOYD — R. A. KELSER
I. D. WILSON

Enforcement of Code of Ethics

During the past season, the Committee on Enforcement of the Code of Ethics has attempted to contact each of the constituent organizations comprising our national association, requesting that they appoint or elect a state committee on ethics through which we, the national committee, could bring about the necessary enforcement. In most instances, we have addressed a letter to the secretary of each constituent organization. In order not to miss any group, we requested, and had published in the AVMA JOURNAL during the month of April, a copy of our request.

The response to our letter has been most gratifying and we believe that the majority, if not all, of the state associations will have appointed or elected a committee on ethics by early fall.

This places us in a position to carry on the enforcement for which we were appointed. It is the consensus of the committee and many of the AVMA executive officers that the AVMA could not possibly act, or should not be requested to act upon, every violation of our Code within the boundaries of all of our constitutent associations. A portion of the enforcement must fall upon the state organizations or, in some instances, upon the local veterinary medical associations.

However, we believe that the national association should be so organized that it is in a position at all times to be of assistance to state or local associations which call for help in enforcing the Code of Ethics. In our opinion, that is why this committee has been appointed.

The following is our program for carrying out enforcement of the Code of Ethics. Violations by an AVMA member should be reported, in writing, first to the local or state association to which the member belongs. A copy of the written report of the violation going to the state or local association should also be sent to the national committee for the enforcement of the Code of Ethics at the same time. This will prepare the national committee with the necessary information in case it is called upon by the state or local association to assist in the case. When the state or local association has taken action, a copy of their report on its disposition should be sent to the national committee for filing or further coöperation, which ever may be deemed necessary. If the matter of the violation cannot be settled satisfactorily to all concerned by the local, state, and national committees on ethics, then the case should be re-

ferred to the AVMA Executive Board to be handled as provided in the By-Laws.

Where a member has reported a violation in writing and does not feel that the local or state committee on ethics is taking action or interest in the matter, he may enlist the action of the national committee in his behalf. An AVMA member may report a violation on the part of another AVMA member even though he does not reside in the same state. In this type of case, it may be considered better that the report be made to the national committee and they in turn will contact the state committee in which the violation occurred.

We wish to take this opportunity to thank the members of our profession, who, during the past season, have sent us materials which have enabled us to contact other members, and in some instances persons or organizations outside of our association, and call to their attention matters pertaining to violations of our Code of Ethics. We would rather that the doctors sending in materials would include their name or at least their professional stationery or envelope. This would give us a chance to thank the doctor personally for his contribution. The committee will make every effort to keep confidential names and matters which are presented to them with these intentions.

Now that this much progress has been made, we believe that the AVMA is in a position to carry out that portion of our 1946 report which stated, "At the time the constituent organizations are sending out notices to their members, the AVMA should do likewise through its Committee on the Enforcement of the Code of Ethics, in order to make the movement one of national scope and to assist the state committees in bringing about results." The AVMA has not, to this date, published anything in the AVMA JOURNAL notifying its members of the fact that they must abide by the AVMA Code of Ethics or answer to any violation. The majority of the states, and we believe by this time, all of them, have notified their members of this action, and it is only right that the AVMA should do its part immediately.

In summary, the following results have been obtained by the committee:

1) All, or the majority, of the constituent organizations have notified their members that they must abide by the Code of Ethics of that association.

2) All, or the majority, of the constituent organizations have adopted the Code of Ethics of the AVMA or one similar and acceptable to the national committee.

3) All constituent organizations, or at least the majority of them, have a state committee on ethics through which the national committee may take action for violations of the code of ethics.

4) A plan has been submitted through which violations of the Code of Ethics may be prosecuted and enforcement obtained.

5) The committee has on file the name of the chairman, and in many instances the names of the entire committee, of the state association committees on ethics.

In conclusion, the AVMA Special Committee for the Enforcement of the Code of Ethics, recommends that the name be changed to AVMA Special Committee on Ethics, for brevity and convenience of its members; that the present committee be continued; that a suitable amount for expenses for the year be budgeted; and that consideration be given to make this a standing committee within the space of another year or two.

s/S. W. HAIGLER, Chairman
R. A. MERRILL R. C. SNYDER

Joint Committee on Foods—AVMA and AAHA

The annual meeting of the committee was held at the Netherland Plaza Hotel, Cincinnati, Ohio, on Aug. 20, 1947, during the AVMA convention.

The official audit of the records of the committee treasurer, Dr. A. R. Theobald, for the fiscal year June 29, 1946, to June 30, 1947, was received and accepted. This audit showed a cash balance as of June 30, 1947, of $4,264.88 with all bills paid.

The complete records of the annual retest on "Gro-Pup" dog food, both ribbon and meal form, as performed in the Department of Biochemistry, University of Wisconsin, were reviewed, including critical analysis by the committee's technical consultant, Dr. M. Wight Taylor. On the basis of the test reports as analyzed, it was voted to grant the committee's Seal of Approval to Gro-Pup dog food, ribbon and meal form, as provided in the official methods and standards. Withdrawal of "Friskies" dog food from supervision was granted, subject to specified time limits on use of labels and containers bearing the committee's wartime statement of acceptance.

USDA CERTIFICATION OF CANNED DOG FOODS

The report of the committee last year (J.A.V.M.A., (Nov., 1947): 445-447) reviewed at some length the government program of testing canned wet foods for dogs, cats, foxes, and other meat-eating animals as authorized under the Research and Marketing Act of 1946. The report of the chief of the Bureau of Animal Industry, USDA, for the year ended June 30, 1947 (but only recently received), states that on that date a total of 25 plants had complied with the requirements of the regulations for government certification and had been issued grants of inspection. Of the 25 plants, 13 were reported as operating under inspection and had manufactured nearly 37,000,000 lb. of inspected and certified product.

PRESENT STATUS OF COMMITTEE'S WORK

A year ago, after reviewing the government program, the report of the committee stated "it is apparent that there is now a duplication in dog-food inspection activities which did not exist at the time the AVMA and AAHA joined forces to carry on their Seal of Approval work." Also, "it would be highly undesirable for a competitive situation to develop (between) government certification and . . . the Seal of Approval of the Joint Committee."

However, the committee did **not** recommend to the coöperating associations that their program be discontinued, as was erroneously reported in one veterinary publication. On the contrary, the committee felt then, as it does now, that its work should proceed to the extent that there still is a need or demand for it, marking time as it were, until future developments indicate clearly the right course to follow. Meanwhile, the committee recommends to the cooperating associations that it be continued, and expresses its willingness to serve in an advisory or consulting capacity to the two associations on any problems that may be submitted to it.

s/S. W. HAIGLER, Chairman
L. A. CORWIN J. G. HARDENBERGH
J. B. ENGLE A. E. WIGHT

Subcommittee on Veterinary Items, National Formulary Committee

The eighth edition, representing the seventh revision of the National Formulary, became official on April 1, 1947. There has been no activity concerning the eighth revision that has required the services of this committee.

s/H. D. BERGMAN, Chairman
R. F. BOURNE P. W. BURNS
C. F. CAIRY

Humane Act Award

We have received 37 nominations, which is the largest number in any year. Some of them are quite good, others are rather ordinary.

The committee's selection for this year's winner is 15-year-old Richard Swank, Mentor, Ohio.

It was interesting to note this year that several humane societies responded to our invitation and made nominations. It continues to be depressing, however, to notice that very few nominations are received from veterinarians. Members of our profession should be the most interested in this activity.

The $100 face value E Bond and the certificate of award will be ready for presentation at the San Francisco convention.

Through our committee and through Mr. Fairall's office this award was brought to the attention of the press, radio stations, youth organizations, humane societies, veterinary schools, and the profession through veterinary journals.

We recommend that the AVMA continue this award next year.

s/W. A. YOUNG, Chairman
R. J. GARBUTT S. T. MICHAEL

Representatives

Representative to the Horse and Mule Association of America

The Horse and Mule Association of America held its twenty-eighth annual meeting at the Palmer House in Chicago, Ill., Dec. 3, 1947. This meeting was well attended by horsemen from all over the United States.

World War II and its aftermath have driven the price of grain to a high level, and the high wages and difficulty of getting farm labor have decreased the use and breeding of draft horses. This has driven many small farmers, who heretofore used horses, to the use of tractors. On the other hand, the use of pleasure horses has been increasing steadily all over the United States. Many former breeders of draft horses are taking up the breeding of light horses and are starting racing stables.

The Association has encouraged interests in horses, polo, trail riding, horse shows, and bridle paths throughout the country. They have one of the greatest mailing lists in the country, covering more than 50,000 people. They can reach eight or ten persons in any county in the United States at any time and give them facts about the situation in their respective counties. Horse shows have grown in the last years. Nearly every county in the central west holds three or four horse shows annually. More and more people are taking up riding for recreation and health.

The Association is trying to encourage the development of more bridle paths and riding trails in the cities. According to the secretary, Mr. Wayne Dinsmore, we have about 850,000 horses broken to use under the saddle at the present time. Five hundred thousand of them are on western ranches, where they are used for work under saddle, rounding up cattle, and fence riding. In this work, there will always be a need for horses to go into the timber, branches, and ravines to get the cattle where they are hidden in such cover. In addition to the 500,000 in use, there are about 350,000 more under saddle, 150,000 of which are in cities and towns, the other 200,000 on farms and plantations.

In addition to the work of encouraging the riding and breeding of horses, the Association has awarded medals and given free trips to 4-H club members to the International Show. They also carry on colt projects for both mules and horses.

The Horse and Mule Association also has appropriated money to sponsor the training of traveling blacksmiths or horseshoers. That has been in operation in Michigan and will be started soon in New Jersey and California.

At our December meeting, we had some fine addresses, as well as motion pictures, on swamp fever and the breeding of race horses. Dr. Stein made a detailed report on swamp fever, with illustrations, showing animals at the different stages of the disease, including the race horses at Rockingham Park, and the control measures adopted in this dread disease.

The Association is expending every effort to aid and encourage the use and breeding of horses and stands ever ready to help to promote the welfare of the horse industry.

s/T. A. SIGLER

Representative to Association of Honorary Consultants, Army Medical Library

The fourth annual meeting of the association was held at the Army Medical Library, Washington, D. C., on Oct. 10 and 11, 1947, President John F. Fulton presiding. Dr. Fulton outlined the purposes of the meeting, an important one being the production of a plan for securing "predictable" appropriations for the Library so as to make it independent of fluctuations in annual congressional appropriations, which have been one of the great handicaps in long range planning of essential library operations, especially in peacetime when Congress is apt to cut military expenditures of all kinds. The tenure of office of the director of the Library should also be made at least ten years in order to promote consistent development of its work. Badly needed, also, is the new library building for which much planning has already been done, the big remaining factor being the necessary appropriation by Congress which is hoped for during the present session.

Col. J. H. McNinch, director of the Library, presented his report in which he pointed out the current problems encountered in operation and development of services, and suggested future study of the possibility of operating the Army Medical Library as a "civil function" of the Department of the Army.

The association now numbers nearly 100 consultants, all fields of medicine being represented, including the medical services of the armed forces and specialists in several professional

library fields. The field of veterinary medicine is represented by Brig. Gen. R. A. Kelser, retired, and the undersigned.

It is desired to reiterate the mention previously made of the services available through the Army Medical Library to all persons in the medical, veterinary, and dental fields. The increased extent to which individuals are taking advantage of these services is reflected by the figures on the number of items delivered to the library hall for reference: January, 1947, 2,955 items; January, 1948, 6,190 items. This is gratifying but poses a big problem because of the present inadequate staff, inadequate space, and incomplete cataloging.

s/J. G. HARDENBERGH

Representative to the Inter-Association Council on Animal Disease and Production

Four members of the Inter-Association Council on Animal Disease and Production assembled for a breakfast session at the Congress Hotel, Chicago, Nov. 30, 1947. Members present were Dr. E. A. Livesay, West Virginia University, chairman, who represented the American Society of Animal Production; Dr. L. E. Card, University of Illinois, representing the Poultry Science Association; Dr. R. C. Klussendorf, Chicago, representing the AVMA; and Dr. D. F. Green, Merck and Co., Rahway, N. J., acting as secretary. Dr. W. E. Petersen, University of Minnesota, representing the American Dairy Science Association, was abroad at the time, and Dr. R. A. Hendershott, Trenton, N. J., representing United States Livestock Sanitary Association, was busy with its annual convention.

The assembled group discussed some of the background of the council, considered some of the problems still facing it, and agreed that the organization should continue. Although it has been inactive during the past year or more, it does remain a skeleton of what it was during the time that it was fully active. This framework provides a ready means of activating the group promptly, should need arise.

s/R. C. KLUSSENDORF

Representative to the National Livestock Loss Prevention Board

Chairman W. A. Young called the group to order in Chicago, Ill., on Feb. 12, 1948, and a very interesting and instructive meeting ensued. The reports of regional managers brought out many points of interest to veterinarians, both in private and public work.

One of the outstanding points was a short discussion on the annual loss to both swine and poultry from avian tuberculosis. If the importance of this phase of veterinary practice was more solidly planted in the mind of the general practitioner, it could result in a great saving in food.

From discussions on grub control and rough handling of livestock, it is easy for one to imagine the tremendous annual savings in food and leather which our world needs so much. This is a project where the veterinarian could render a big service in giving help and advice.

It is believed that members of this board and veterinarians can, and will, do a tremendous amount of good in encouraging 4-H clubs and similar groups in this work of livestock loss prevention from the time preceding the birth of food animals until they reach the killing floor.

In the open meeting, there were many favorable comments on the brucellosis program as recommended by the United States Livestock Sanitary Association. This subject was referred to the Executive Committee which passed a resolution endorsing the program. It was brought out that this brucellosis program has been endorsed by 34 of the 45 state farm bureaus.

s/W. E. LOGAN

Representative to the Division of Biology and Agriculture of the National Research Council

The Association's representative to the Division of Biology and Agriculture in the National Research Council of the National Academy of Sciences attended the annual meeting of the Division held in Washington, D. C., on May 6, 1948. Among other matters on the agenda for this meeting were reports on the following: recent policy decision of the National Research Council of interest to the Division; shaping of the Selective Service Act of 1948; the Fulbright Act; International Activities and Outlook; the activities of the Food and Nutrition Board and of the American Institute of Biological Sciences which was duly organized February 20, 1948.

Dr. D. W. Bronk, chairman of the National Research Council, outlined the functions and outlook of the council in a clearcut and comprehensive manner, bringing out the important part that this organization can take in both national and international problems because of its freedom from political and other pressure groups. A few of the new activities of the council that were mentioned included the work of the Committee on Undersea Warfare in cooperation with the Office of Naval Research; the securement of $100,000 from Merck & Company for fellowships and $2,500,000 from the Atomic Energy Commission for similar purposes. These, and others too numerous to mention in this report, are of extreme importance to all societies affiliated with the Division. In order to better acquaint the members of the various societies with the functions of the council and to bring about a closer relationship, which will make it possible for the various organizations to avail themselves more fully of the services of the council, it was suggested that each representative request that he be allowed to appear on the program of his society or association to discuss the functions and outlook of the council and, more particularly, as these have a bearing on the activities of his own group. Your representative concurs in this idea, but knowing how full the programs of our meetings usually are it is felt that an article on this subject to be published in the JOURNAL of the AVMA might be even more effective. This your representative would be willing to prepare.

You are already familiar through the reports of the Division with the important work that is being done by the committees on Animal Health, Public Health Aspects of Brucellosis, Losses among Calves, Animal Nutrition, Feed Composition, Veterinary Services for Farm Animals, and others directly in our field.

The American Institute of Biological Sciences is now formally established. Twelve societies were reported to have accepted full membership, and one as an affiliate member. Two more were voted upon favorably at this meeting. The benefits to be derived from this organization seem obvious, especially as these pertain to most of the societies. The American Veterinary Medical Association is perhaps better organized than most of the others as was shown

in the better placing of veterinarians in the last war. An important function of this organization will be to see that more efficient use of trained scientific personnel is made in any emergency bearing on our national security. With the decreased demand for purely veterinary services in the armed forces, it appears that this organization can do much to see that veterinarians will be properly placed and that their skill will be used to the greatest advantage in allied fields. The full membership fee was finally decided to be $1,000 per year to the association or society rather than $1.00 per member as originally suggested. For the American Veterinary Medical Association this would be only about ⅛ of the original figure. The cost of affiliate membership is $100 per year.

Your representative recommends that the American Veterinary Medical Association consider an affiliate membership first. Full membership could be considered later.

s/E. P. JOHNSON

Representative to the National Research Council—Division of Medical Sciences

Your representative to this division was unable to attend the meeting on May 1, 1948, and unfortunately the alternate was also unable to attend. Therefore, it will not be possible to make a report at this time.

s/H. D. BERGMAN

Representative to National Society for Medical Research

The annual meeting of the board of directors of the society was held in Chicago, Feb. 8, 1948, Dr. A. J. Carlson presiding. A report was presented covering the markedly augmented program undertaken by the society since its organization in 1946. Nearly 60 organizations are now members, compared with 45 about a year ago. The NSMR now includes in its membership nearly every national scientific association and institution in the United States; all medical colleges are members, as are also the Mayo Foundation, the Mellon Institute, and the Rockefeller Institute.

The society has issued a number of publications which tell in effective manner the stories of various medical discoveries and their animal experimentation background. One of these was titled "606 to Sulfa" and was intended as the first of a series; the series idea has been dropped, however, in favor of a bound volume of source articles on animal experimentation for schools and libraries. One of the mediums used for its public educational program is the radio; a series of excellent scripts called "Research Reports" has been prepared and issued at weekly intervals to about 50 selected radio stations over the country. These scripts give a résumé of activities, achievements, and adventures in medical science and include one feature subject told in dramatic and human-interest fashion. Frequent mention is made of developments in veterinary science; one script featured the 60-year-old story of the cattle tick and its significance to later studies on disease transmission by insect vectors; another script dramatized veterinary scientists as the protectors of pet animals and the importance of veterinary investigations from the humanitarian standpoint, including mention of the AVMA research fund to train people in the vital humane field of saving animal lives and eliminating animal suffering. Still another script told of the fight being waged by veterinarians against foot-and-mouth disease in Mexico.

It is believed that one of the most important and useful functions performed by this organization is in collecting and correlating subject material and data on the benefits of animal experimentation to human and animal health. A wealth of such information is available for use in talks, discussions, and lectures for high school, college, and civic groups and the NSMR will meet reasonable requests for copies of its educational material. This service can be of great value to individual veterinarians and veterinary agencies, who not infrequently are asked to discuss various phases of animal experimentation or to substantiate the need for it.

As recently expressed by Dr. A. C. Ivy, secretary-treasurer of the Society, "Our principal objective at the moment is to eliminate the mistaken notion that antivivisectionism is the basis for a sane controversy. Constant reporting of the 'how' of medical developments by every institution and every company conducting research will make plain to all the vital rôle of animals in medical progress. Such plain factual reporting will do more than a million argumentative documents to reveal the fantastic and dangerous nature of the antivivisection cause. In line with our efforts to obtain more routine mention of the use of animals for research, teaching, and standardization, we would appreciate your utilizing every opportunity to spread knowledge of the necessity to 'study life in order to protect life'."

The Society offers free of charge any reasonable quantities of its various pamphlets and reprints for the information of, and use by, AVMA members. It is felt that, as spokesmen for medical science, they can do much to bring understanding of properly conducted research on animals to thousands of people. In addition to reprints of about a dozen different articles by outstanding authors, the available material includes an outline for a talk on animal experimentation and its medical and veterinary aspects.

The finances are sound and properly administered. Last year, the total income, entirely from contributions, was not quite $54,000; the estimated expenses for the six months following the annual meeting were slightly under $5,000 per month. As a member organization, the AVMA contributed $200 last year. It is recommended that a like sum be approved for the current year.

At the meeting on February 8, the board of directors unanimously reëlected Dr. A. J. Carlson and Dr. A. C. Ivy as president and secretary-treasurer, respectively. Mr. Ralph A. Rohweder is executive secretary and the headquarters of the National Society for Medical Research are located at 25 East Washington St., Chicago 2, Ill. It is suggested that requests for the educational material be addressed to that office.

s/J. G. HARDENBERGH

Representative to the U. S. Pharmacopoeial Convention

This group does not meet again until 1950, and I have not been called upon at any time to take up any matter with the committee for the revision of the Pharmacopoeia.

Between now and 1950, the AVMA should select the members who will represent it at the 1950 convention. The names of two representatives and two alternates, together with their respective addresses, should be forwarded to the U. S. Pharmacopoeial Convention well in advance of the 1950 meeting.

s/H. E. MOSKEY